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AUTHORITY

affdl ltr, 31 may 1973

KC-135 POWER SPECTRAL VERTICAL GUST LOAD ANALYSIS

SUPPLEMENT RESULTS VOLUME II

ROBERT N. LATZ
THE BOEING COMPANY

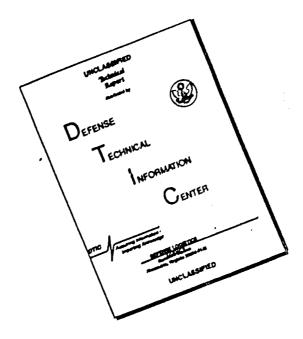
TECHNICAL REPORT AFFDL-TR-66-57, VOLUME II
JULY, 1966

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AIR FORCE FLIGHT DYNAMICS LABORATORY
RESEARCH AND TECHNOLOGY DIVISION
AIR FORCE SYSTEMS COMMAND
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

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AFFDL TR-66-57 VOLUME II

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AIR FORCE FLIGHT DYNAMICS LABORATORY
RESEARCH AND TECHNOLOGY DIVISION
AIR FORCE SYSTEMS COMMAND
WRIGHT-PATTERSON AIR FORCE BASE, OHIO

FOREWORD

The program described in this report was conducted the the Structural Dynamics Unit, Structures Staff, Commercial Airplane Division, The Boeing Company, Renton, Washington. The program was monitored by Mr. Paul Hasty (FDTR), Air Force Flight Dynamics Laboratory, Research and Technology Division, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio, under contract number AF33(615)-2454, "Investigation to Obtain Specific Design Calculations on Proven Transport Aircraft for the Verification of a Gust Design Procedure Based on Proven Spectral Techniques." The program was accomplished under system number 5(611367 62405334), project number 1367, "Structural Design Criteria", task number 136702, "Aerospace Vehicle Structural Loads Criteria." The time period covered by this final technical report is 1 July 1965 to 1 June 1966. The manuscript was released by the author on 1 April 1966 for publication as an RTD technical report.

Supervising consultant was Dr. John C. Houbolt of Aeronautical Research Associates of Princeton. Robert N. Latz conducted the analysis under the supervision of Arthur J. Kamm, Supervisor of the Structural Dynamics Unit.

This report has been given The Boeing Company document number D6-18252.

This technical report has been reviewed and is approved.

FRANCIS JANIK JR.

Chief, Theoretical Mechanics Branch

Structures Division

ABSTRACT

This document presents frequency response functions, power spectra, and response parameters of bending moments, shears, and torsions at two wing stations and two body stations for five conditions of speed, gross weight, and altitude. Volume I presents frequency response functions and response parameters for stresses at the same wing and body stations. Also presented in volume I are ratios of incremental allowable limit stress to stress response parameter.

CONTENTS

Sectio	<u>n</u>																					Page
I	INTRODUC'	TION		• (•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	1
п	LOAD FRE	QUENCY F	RESI	POI	NSI	ΕF	'U'	1C	ΤI	ON	IS	•	•	•	•	•	•	•	•	•	•	ç
	Analysis Co	ondition 1		•				•	•				•									9
	Analysis Co																					33
	Analysis Co	ondition 3				•		•	•			•	•	•	•	•	•	•	•	•		43
	Analysis Co	ondition 4		•		•		•	•	•		•	•	•	•		•	•		•	•	53
	Analysis Co	ondition 5	• •	•	• •	•	• •	•	•	•		•	•	•	•	•	•	•	•	•	•	63
Ш	LOAD POW	ER SPECT	'RA	•	•	•		•	•	•		•	•	•	•	•	•	•	•	•	•	7 3
	Analysis Co	ndition 1						•	•			•		•				•	•			73
	Analysis Co	ndition 2	• •	•	• •	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	123
	Analysis Co																					153
	Analysis Co																					183
	Analysis Co	ndition 5	• •	•	•	•	• •	•	•	•	•	•	•	•	•	•	•	•	•	•	•	213
IV	LOAD RESI												•	•	•	•	•	•	•	•		243
	Analysis Co	ndition 1																				243
	Analysis Co																					245
	Analysis Co																					246
	Analysis Co																					247
	Analysis Co		• •	•	• •	•	• •	•	•	•	•	•	•	•	•	•	•	•	•	•	•	248
		∧BBRI																				
A		load resp for a 1									V	alı	ıe	of	i	nc	re	en	ne	nt	al	load
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(IN-LI	3)** 2/CPS	inch-pounds squared per cycle per second																				
(LB-II	N)** 2/CPS	pound-in	ches	ss	qua	rec	d p	er	C.	ycl	e j	p e :	rs	se	co	no	ŀ					
KTAS		knots tru	e ai	rsp	oce	d																

SECTION I

INTRODUCTION

This document presents frequency response functions, power spectra, and response parameters of bending moment, shear, and torsion at two wing stations and two body stations. Five speed, altitude, and gross weight conditions were investigated.

Figure 1 shows the locations on the airplane where the loads are measured. The wing loads are about wing stations normal to the elastic axis as shown by sections A-A and B-B in the figure. Tables I and II summarize the analysis and weight conditions of the airplane.

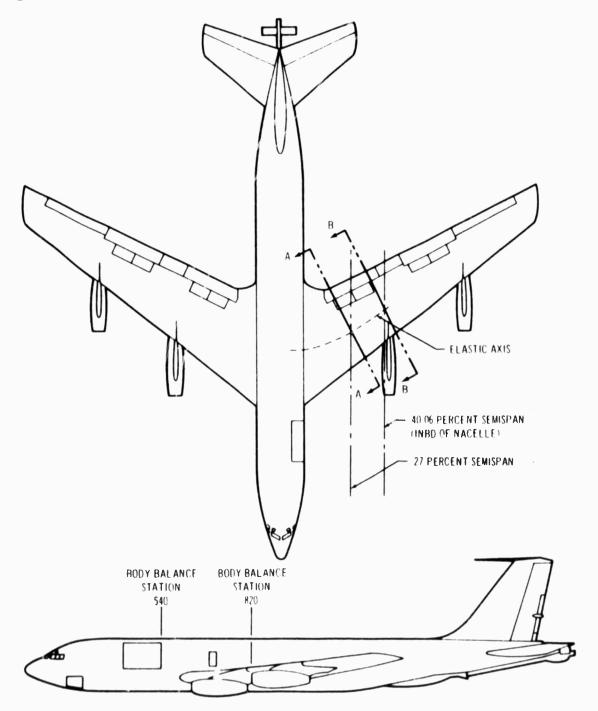


Figure 1. Locations at Which Stresses Are Obtained

Table 1. Summary of Analysis Conditions

Analysis condition number	.Weight condition	Gross weight (1b)	Altitude (ft)	Equivalent airspeed (kn)	Mach number	Body fuel (1b)	Wing fuel (Ib)
1	Α	297,000	24,000	350	0.85	83,328	109,512
2	В	268,000	24,000	350	0.85	87,927	75,913
3	С	190,5 9 0	24,000	350	0.85	83,323	3,100
4	D	107,260	24,00C	35 0	0.85	0	3,100
5	Α	297,000	24,000	207	0.50	83,328	109,512

Table II. Summary of Weight Conditions

Weight Gross weight (th)						Fuel (lb)				
	CG	CG	Wi	ng		Body				
		(percent mac)	Outboard mains 1 & 4	Inboard mains 2 & 3	Center section	Outboard reserves	Forward	Aft	Upper	
A	297,000	21.4	26,806	29,575	47,489	5,642	37,700	41,457	4,171	
В	268,000	23.0	14,212	14,212	47,489		37,700	41,457	8,770	
C	190,590	28.3	1,550	1,550			37,700	41,457	4,173	
D	107,260	35.1	1,550	1,550						
	Capacity of ta	nks	26,806	29,575	47,489	5,642	37,700	41,457	14,131	

Note: Fuel density at 6.5 pounds per gallon

SECTION Π

LOAD FREQUENCY RESPONSE FUNCTIONS

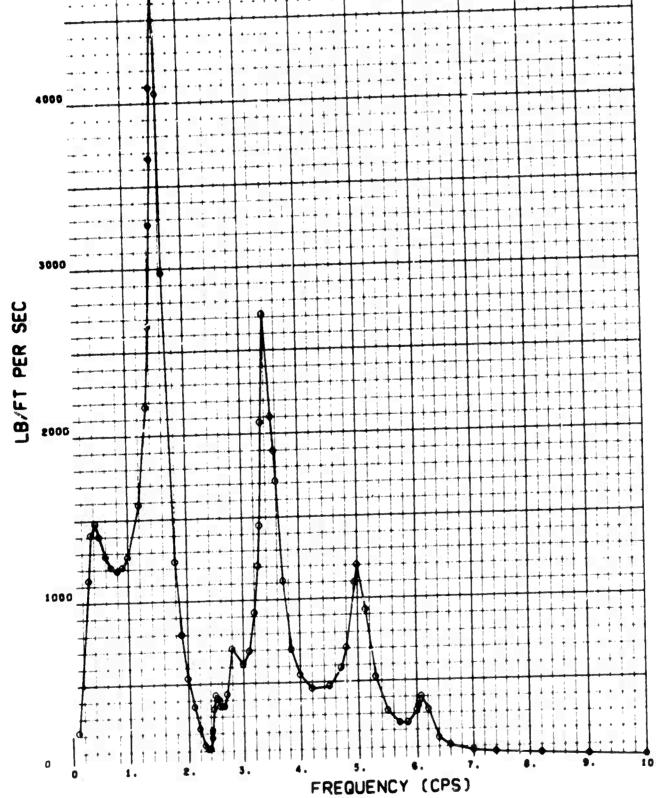
ANALYSIS CONDITION 1 WEIGHT CONDITION A

CUTOFF FREQUENCY:

10 CPS

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0. 85



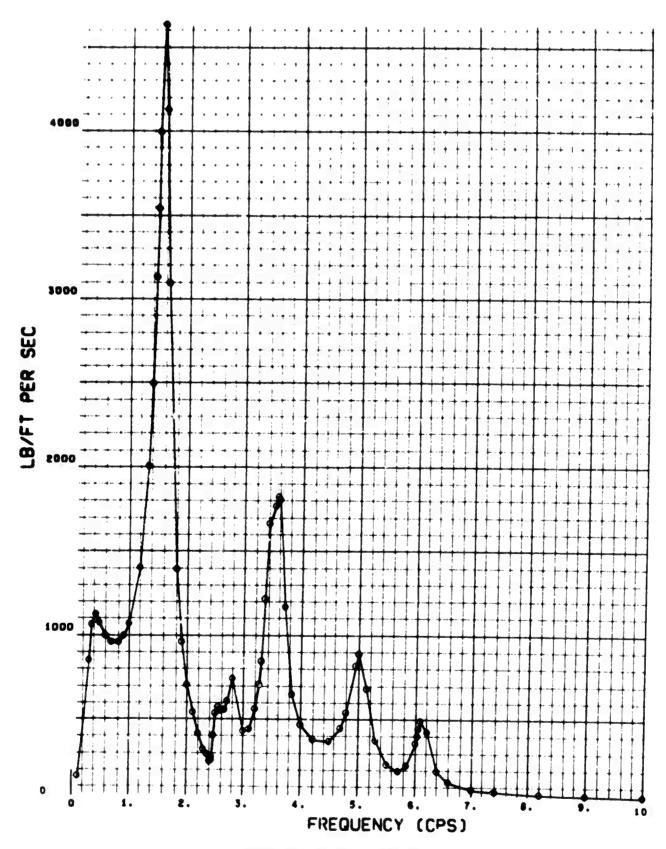
WING SHEAR RESPONSE, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297,000 LB CUTOFF FREQUENCY:

10 CPS

24,000 FT 0. 85



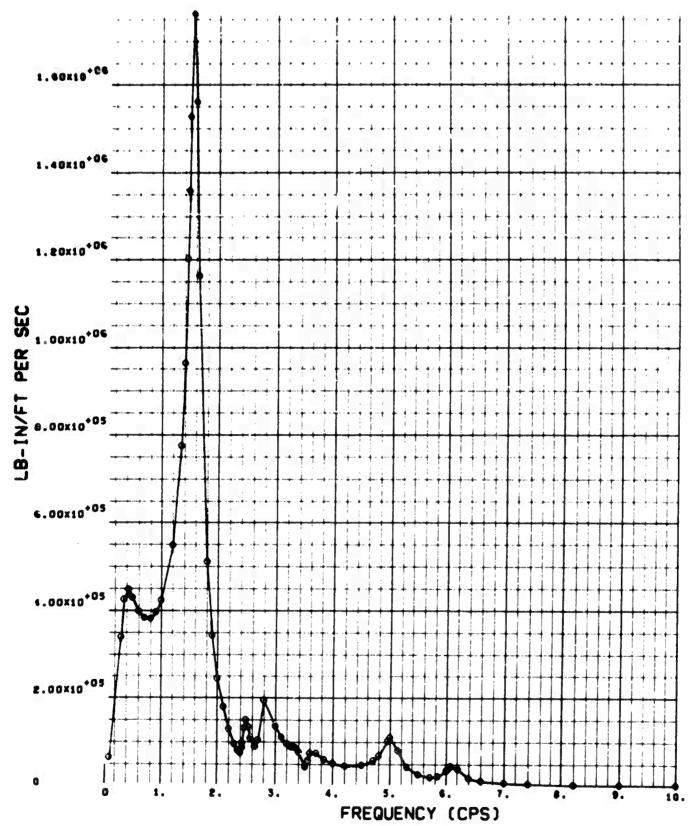
WING SHEAR RESPONSE, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: 297, 000 LB CI 24, 000 FT 0. 85

CUTOFF FREQUENCY:

10 CPS

ALTITUDE: 24,000 MACH NUMBER: 0.85



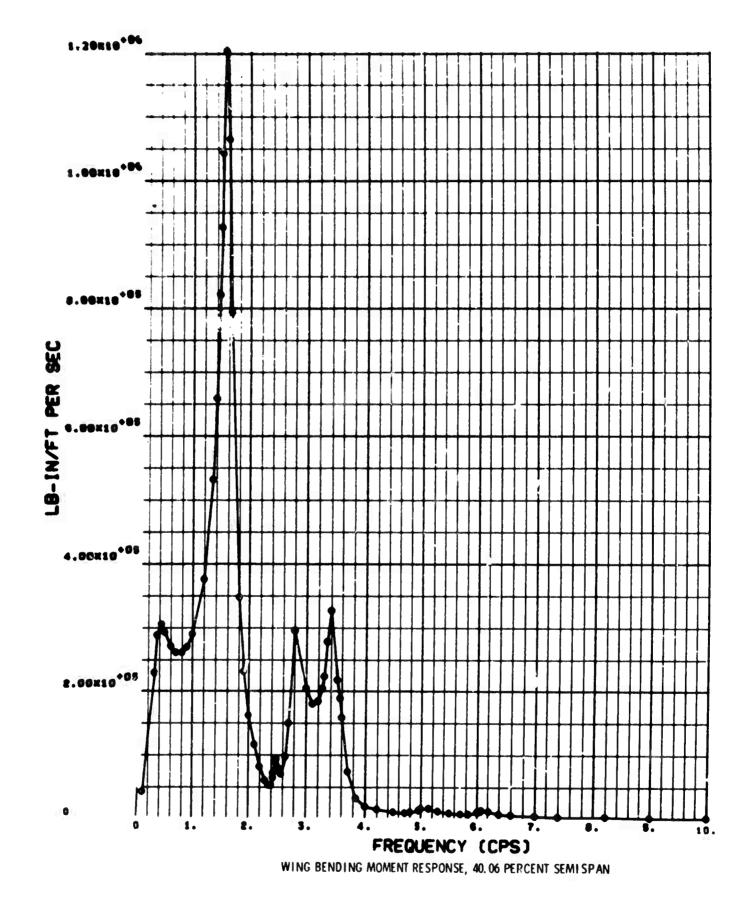
WING BENDING MOMENT RESPONSE, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY:

10 CPS



ANALYSIS CONDITION 1 WEIGHT CONDITION A

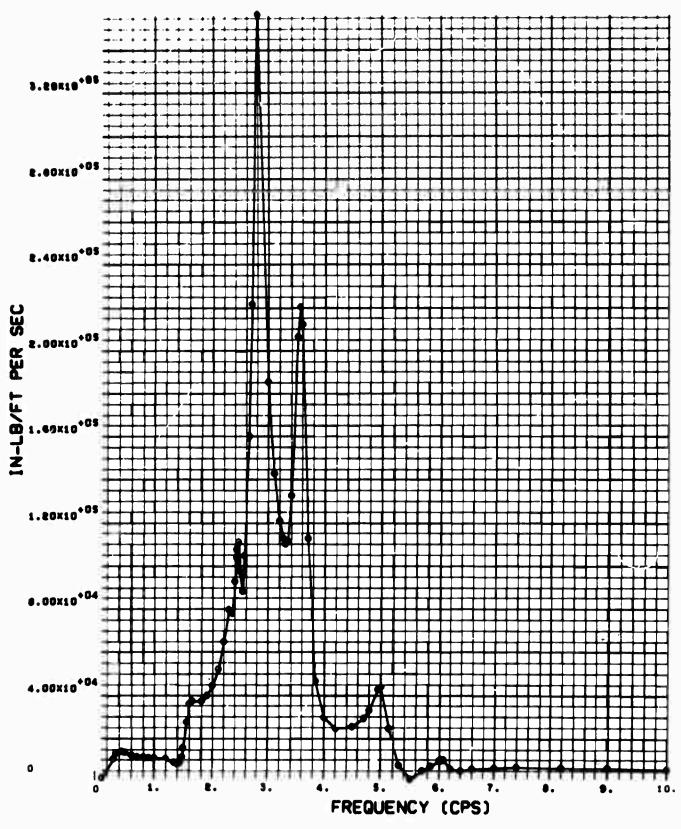
GROSS WEIGHT: ALTITUDE:

297, 000 LB 24, 000 FT

CUTOFF FREQUENCY:

10 CPS

MACH NUMBER: 0.85

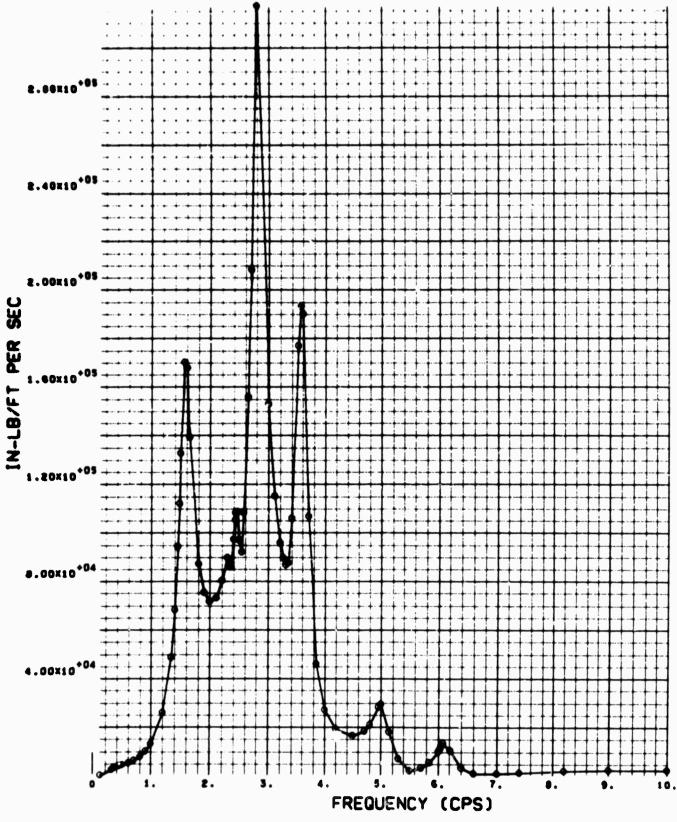


WING TORQUE RESPONSE, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0. 85 CUTOFF FREQUENCY:

10 CPS



WING TORQUE RESPONSE, 40.06 PERCENT SEMISPAN

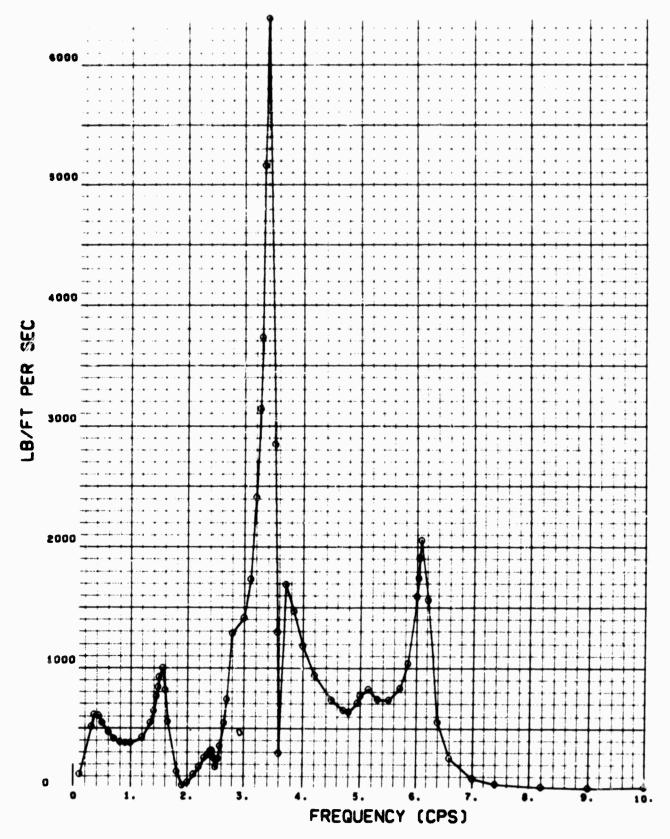
GROSS WEIGHT: ALTITUDE:

297,000 LB 24,000 FT

CUTOFF FREQUENCY:

10 CPS

MACH NUMBER: 0.85



BODY SHEAR RESPONSE, **BODY BALANCE STATION: 540**

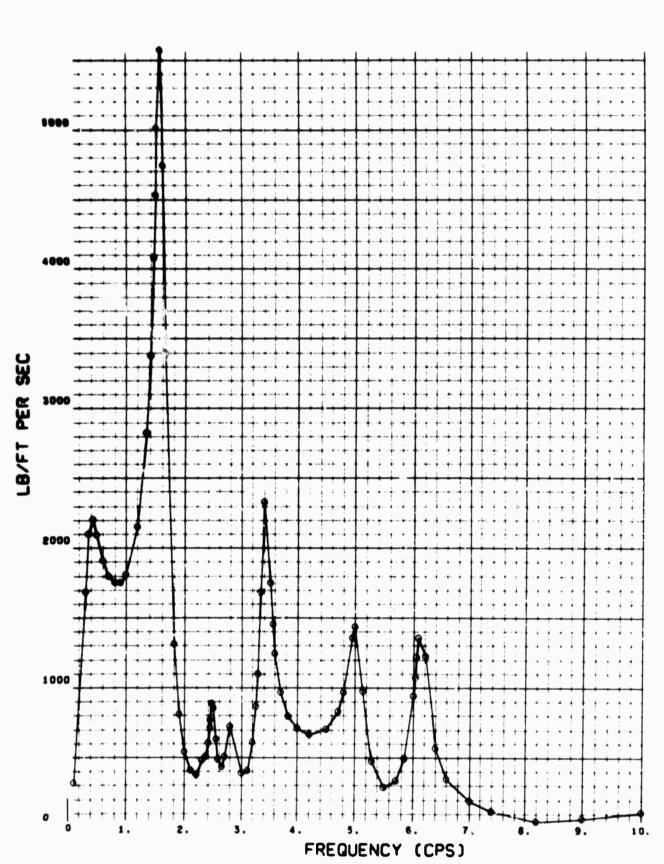
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297, 000 LB 24, 000 FT

CUTOFF FREQUENCY:

10 CPS

0.85



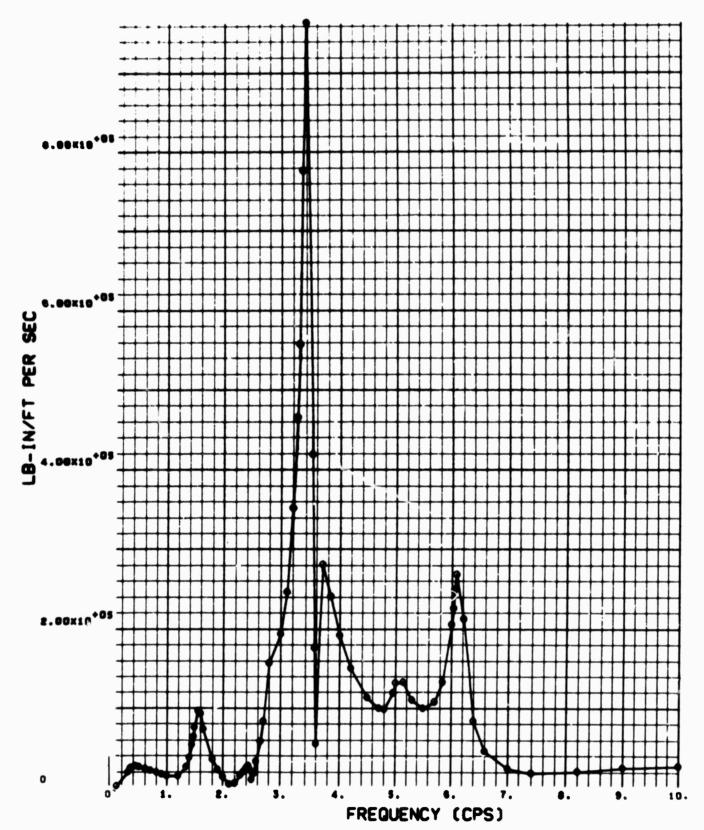
BODY SHEAR RESPONSE, BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

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CUTOFF FREQUENCY:

10 CPS



BODY BENDING MOMENT RESPONSE, BODY BALANCE STATION: 540

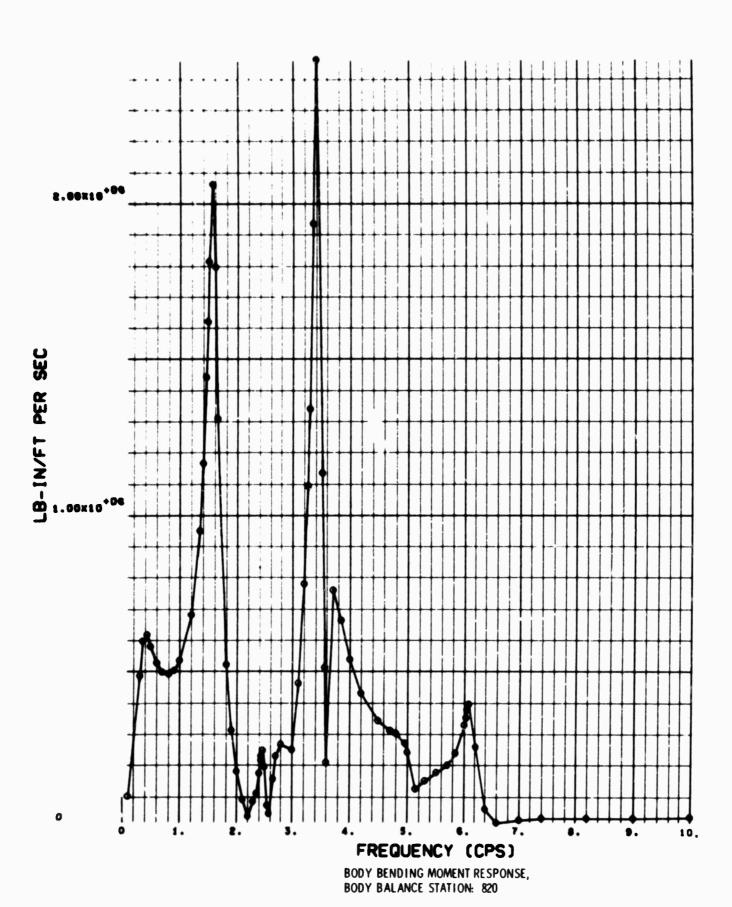
GROSS WEIGHT: ALTITUDE:

297, 000 LB 24, 000 FT CUTOFF FREQUENCY:

10 CPS

MACH NUMBER:

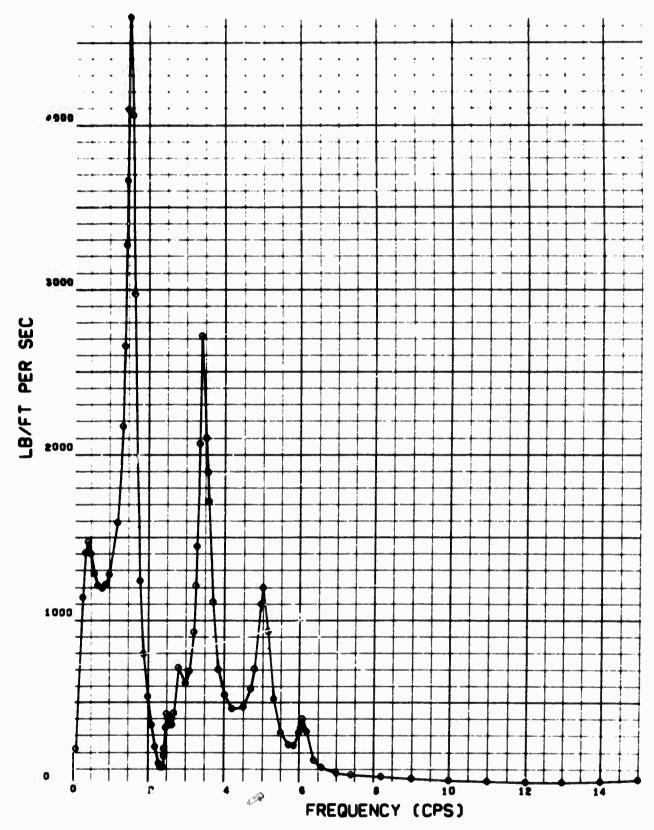
0. 85



GROSS WEIGHT: ALTITUDE: MACH NUMBER:

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15 CPS



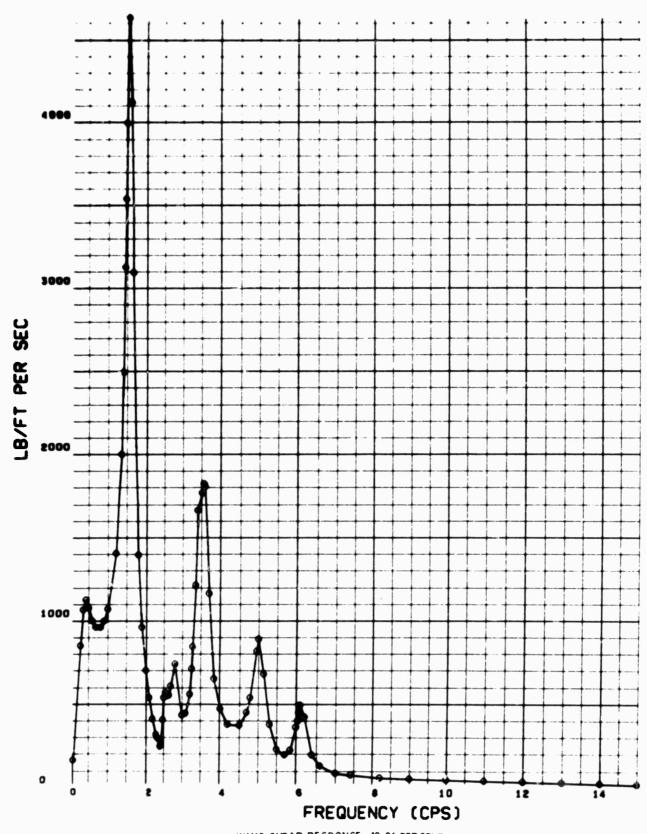
WING SHEAR RESPONSE, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE MACH NUMBER:

297, 000 LB 24, 000 FT CUTOFF FREQUENCY:

15 CPS

0.85



WING SHEAR RESPONSE, 40.06 PERCENT SEMISPAN

GROSS WEIGHT:

297, 000 LB CUTOFF FREQUENCY: 15 CPS

ALTITUDE: MACH NUMBER:

24,000 FT 0.85

1.20×10⁺⁰⁶ N 1.00×10+06 6.00×10⁺⁰⁵ 4.00x10⁺⁰⁵ 2.00x10⁺⁰⁵ FREQUENCY (CPS) WING BENDING MOMENT RESPONSE, 27 PERCENT SEMISPAN

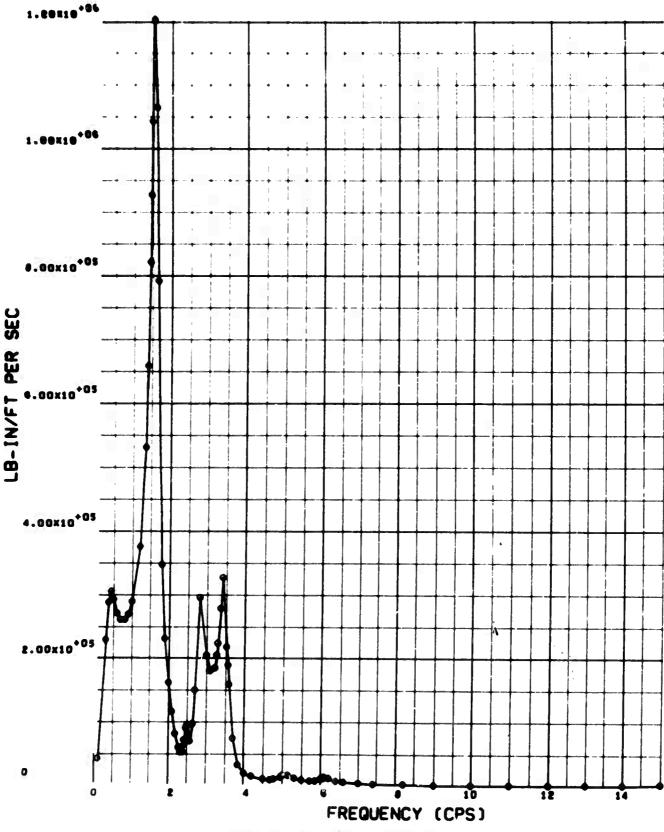
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GROSS WEIGHT:

297, 000 LB CUTOFF FREQUENCY: 24, 000 FT 0. 85

15 CPS

ALTITUDE: 24,0 MACH NUMBER: 0.85



WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMISPAN

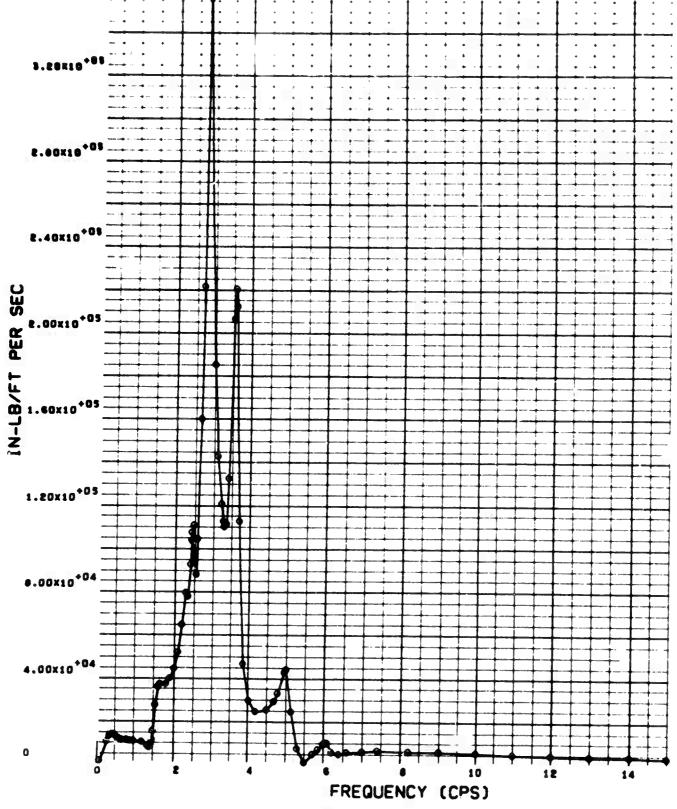
14

10 CPS

GROSS WEIGHT: 297, 000 LB CUTOFF FREQUENCY:

ALTITUDE: 24, 900 FT 0. 85

MACH NUMBER:



WING TORQUE RESPONSE, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 1 WEIGHT CONDITION A

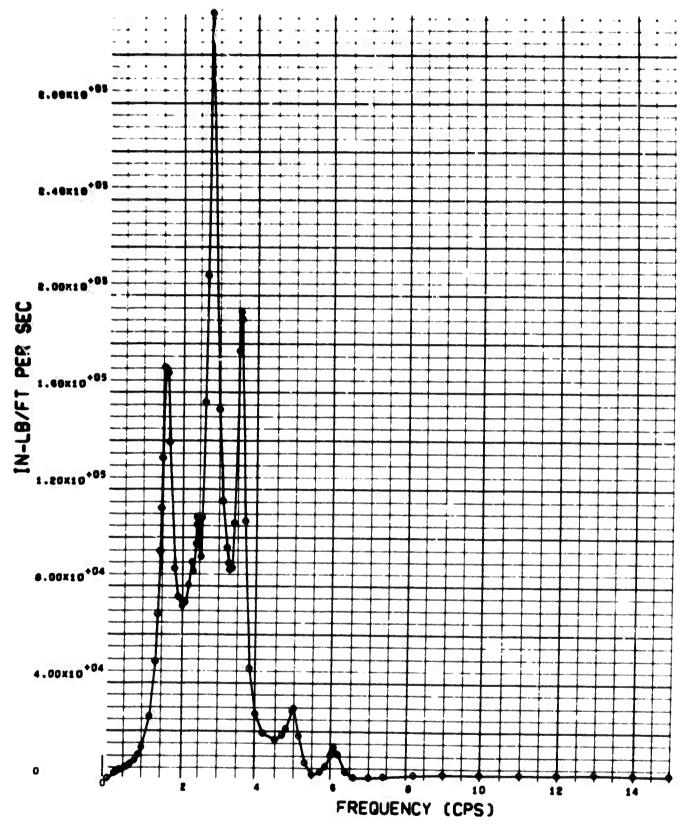
GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT

CUTOFF FREQUENCY:

15 CPS

0.85



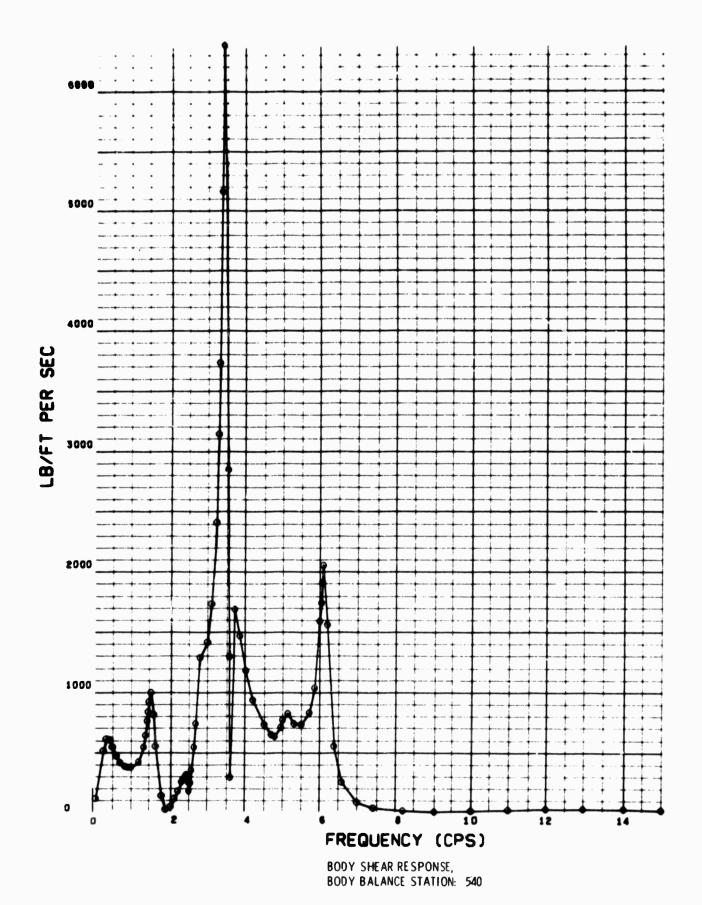
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CUTOFF FREQUENCY:

15 CPS

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

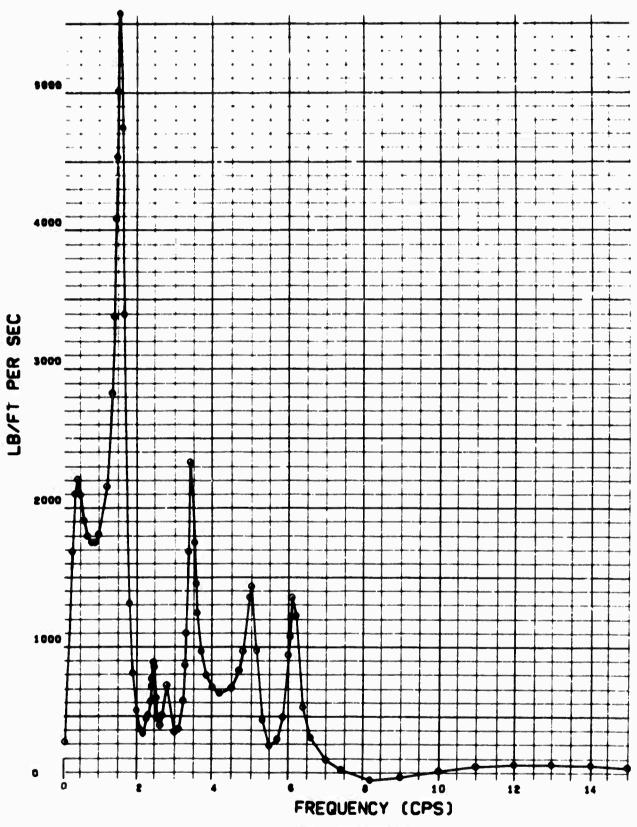
297, 000 LB 24, 000 FT 0. 85



GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0. 85 CUTOFF FREQUENCY:

15 CPS



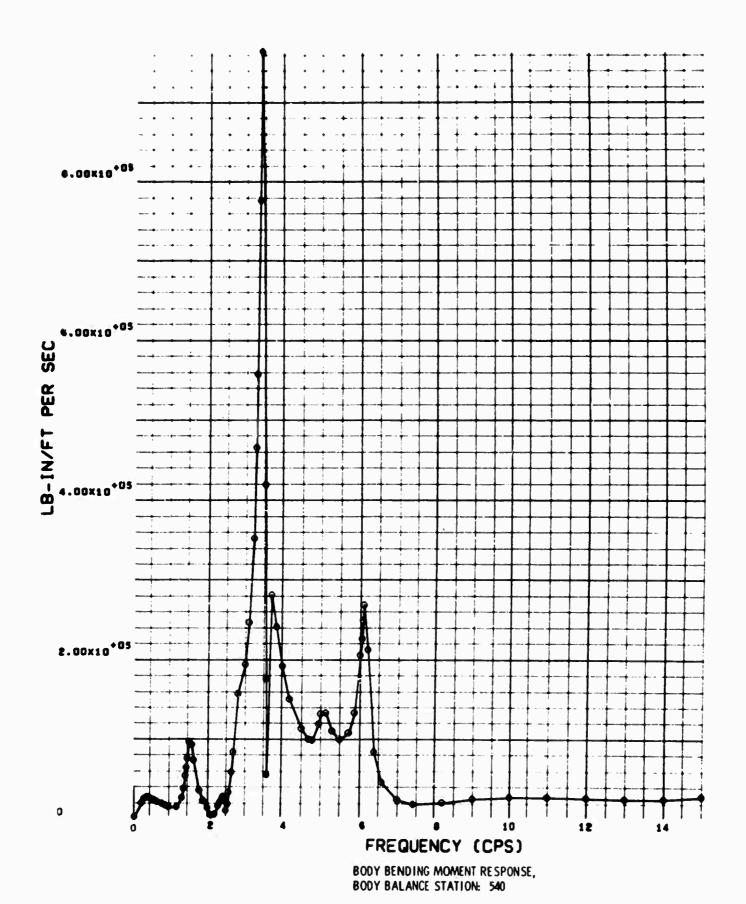
BODY SHEAR RESPONSE,

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

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CUTOFF FREQUENCY:

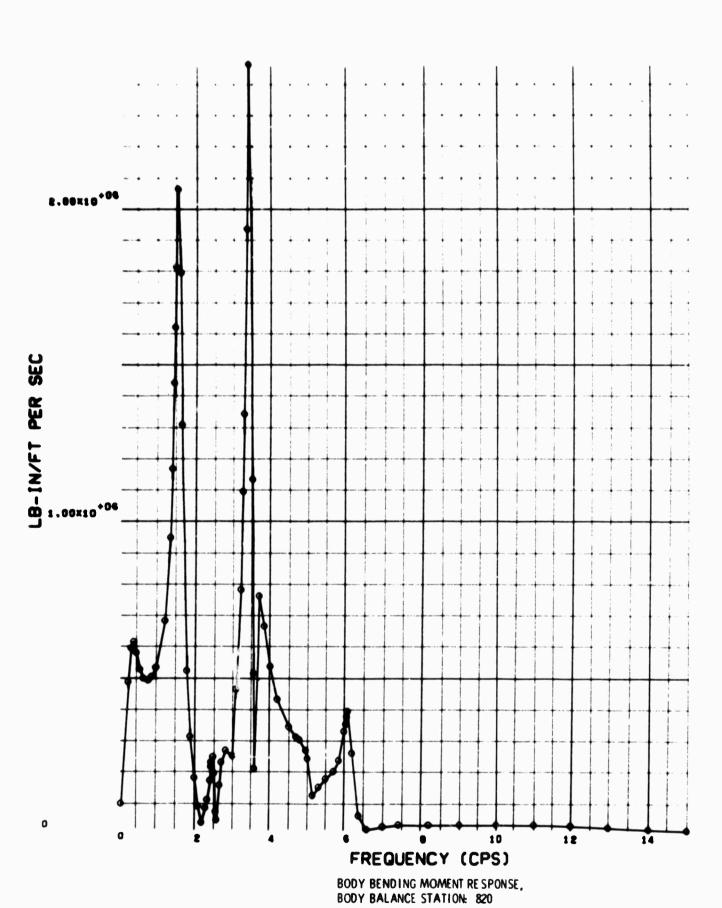
15 CPS



GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY:

15 CPS



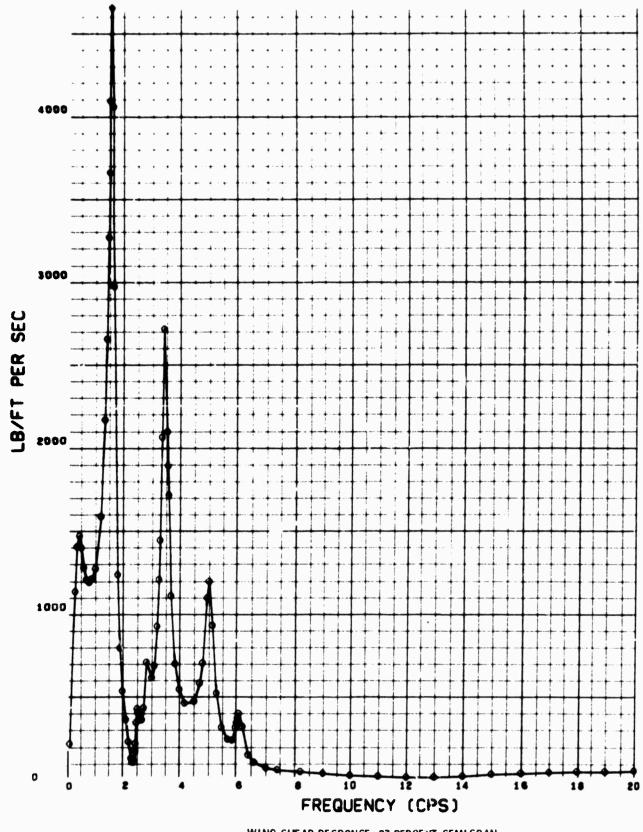
ANALYSIS CONDITION 1 WEIGHT CONDITION A

CUTOFF FREQUENCY:

20 CPS

247,000 LB 24,000 FT

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 0.85



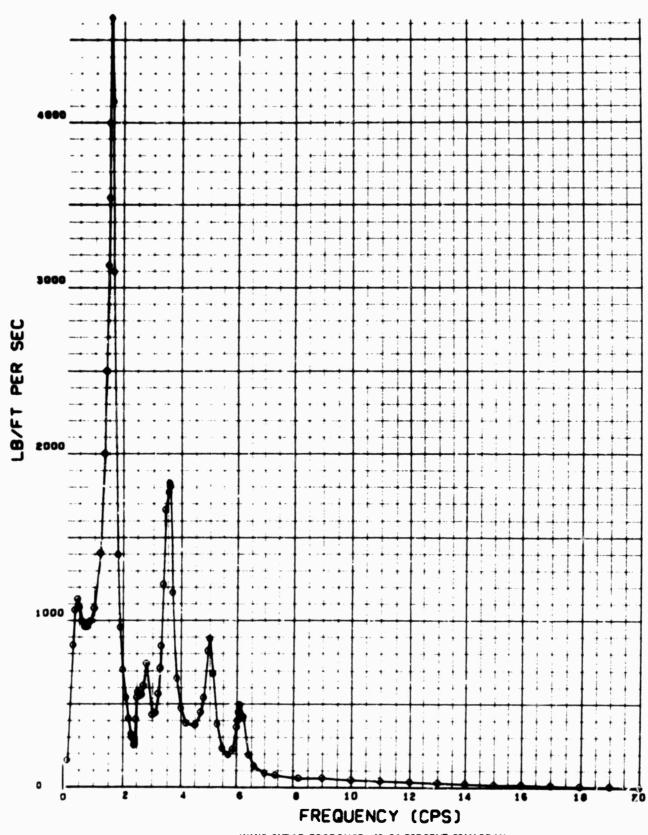
WING SHEAR RESPONSE, 27 PERCENT SEMISPAN

CUTOFF FREQUENCY:

15 CPS

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0, 85



WING SHEAR RESPONSE, 40.06 PERCENT SEMISPAN

ANALYSIS CONDITION 1 WEIGHT CONDITION A

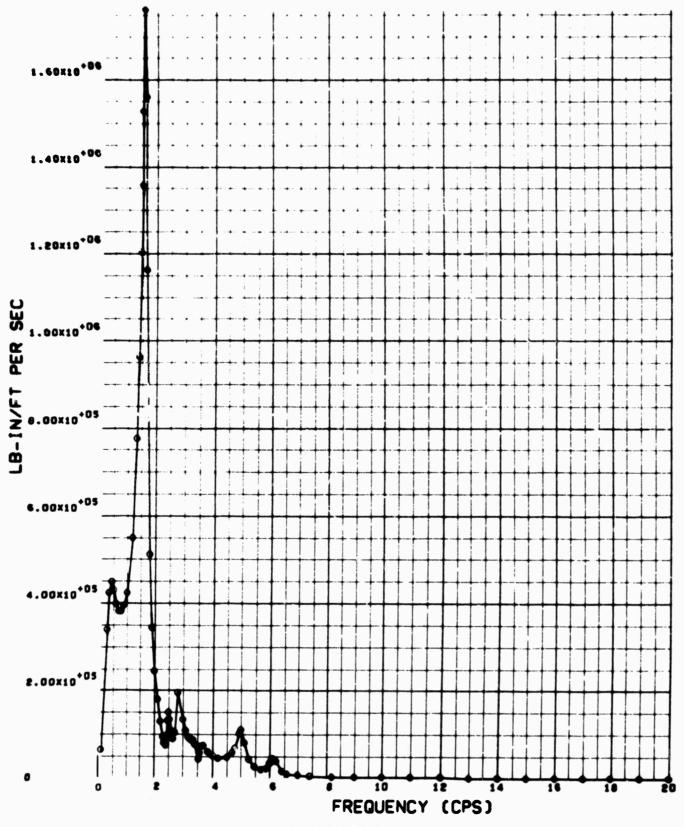
297, 000 LB 24, 000 FT

CUTOFF FREQUENCY:

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GROSS WEIGHT: ALTITUDE: MACH NUMBER:

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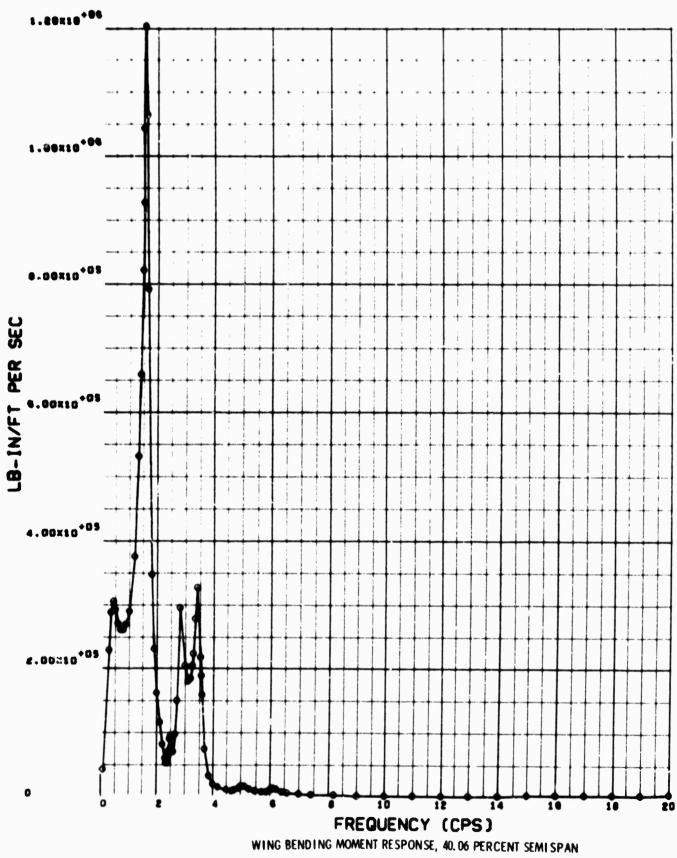
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CUTOFF FREQUENCY:

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GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0. 85

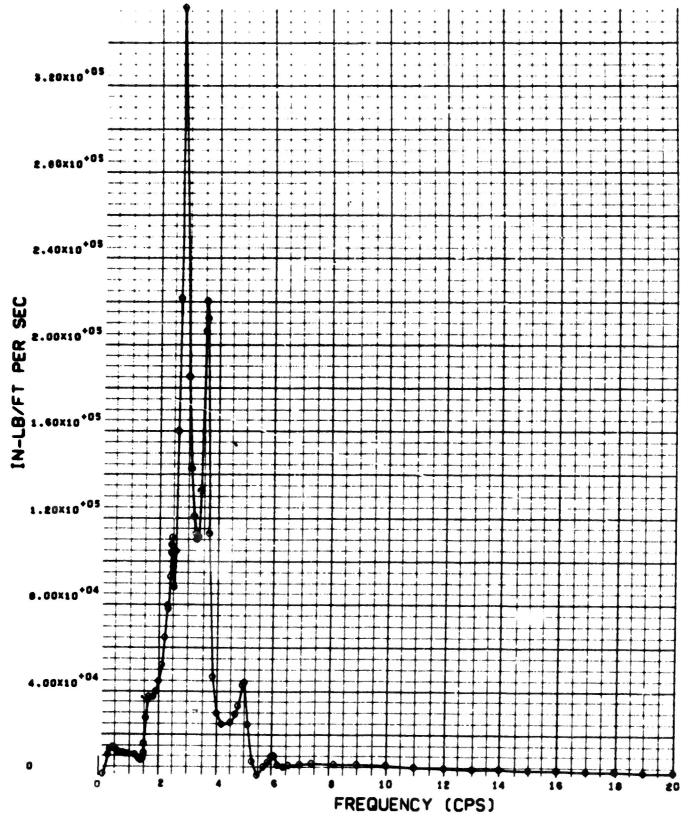


297, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY:

20 CPS

GROSS WEIGHT: ALTITUDE: MACH NUMBER:



WING TORQUE RESPONSE, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE:

297, 000 LB 24, 000 FT CUTOFF FREQUENCY: 20 CPS

MACH NUMBER: 0.85

IN-LB/FT PER SEC FREQUENCY (CPS)

WING TORQUE RESPONSE, 40.06 PERCENT SEMISPAN

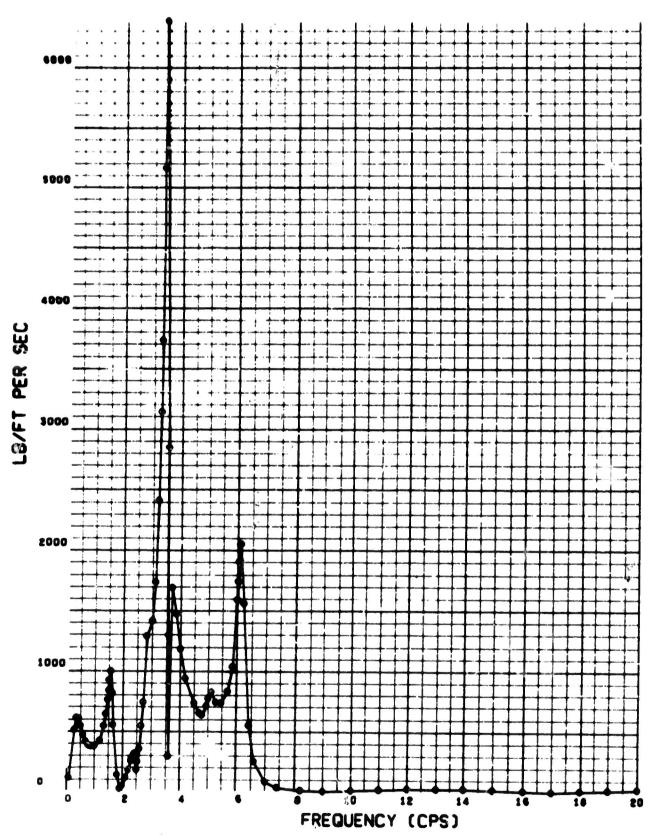
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MACH NUMBER:

0.85

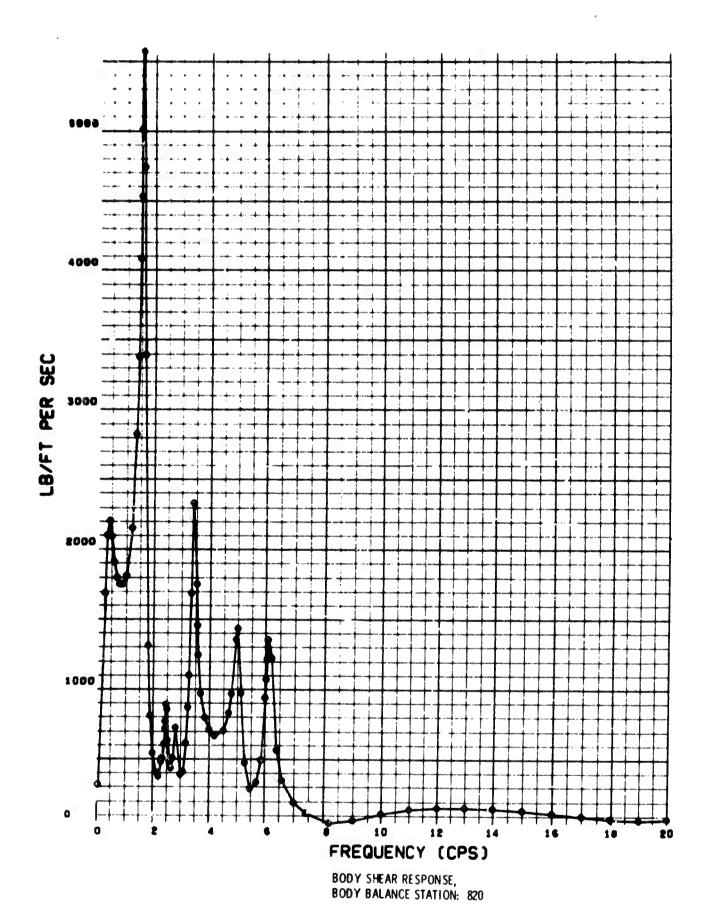


BODY SHEAR RESPONSE, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0. 85

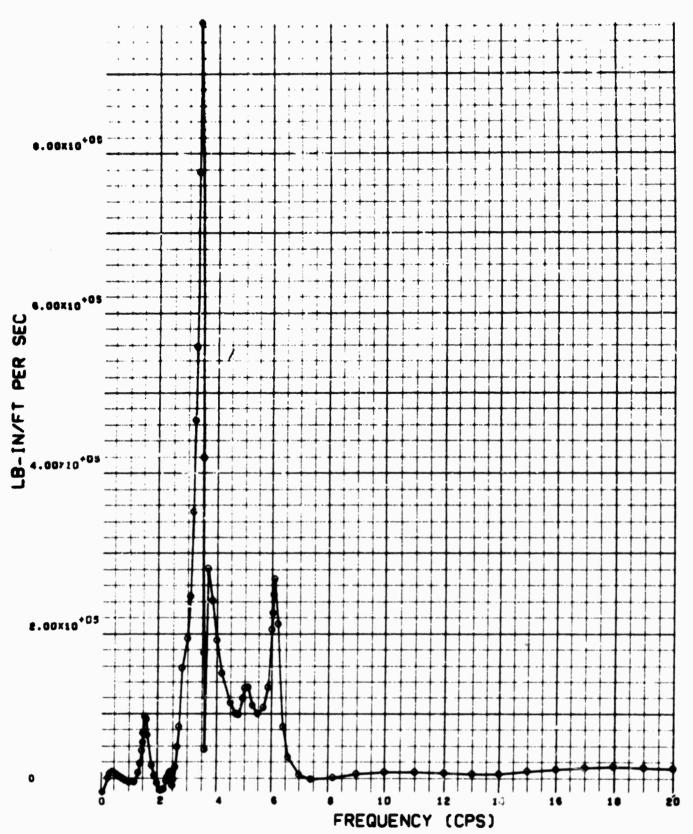
CUTOFF FREQUENCY:



GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0, 85

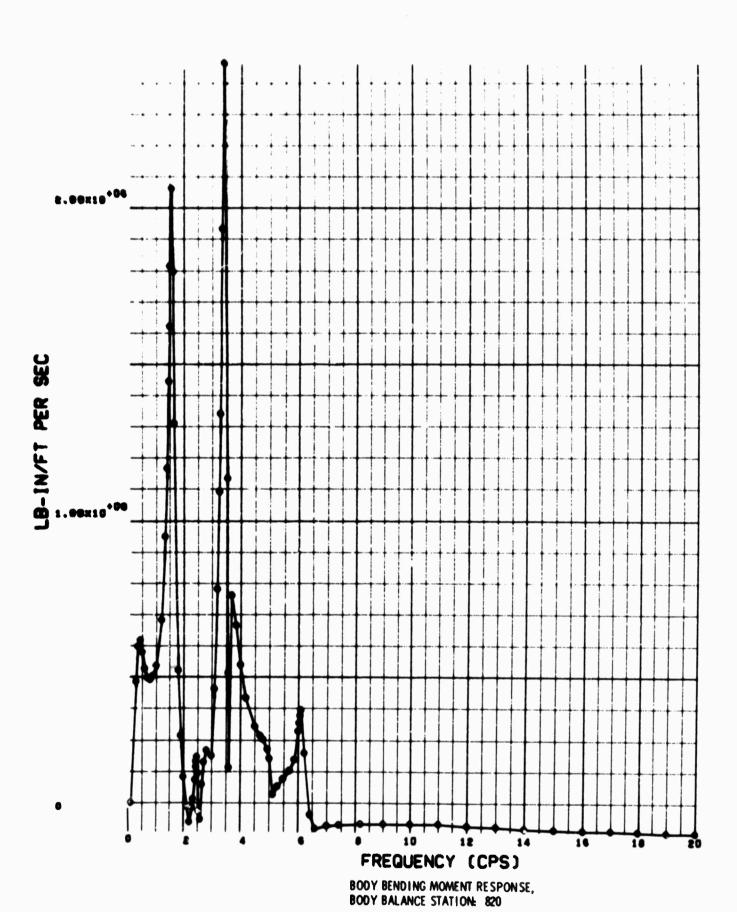
CUTOFF FREQUENCY:



BODY BENDING MOMENT RESPONSE, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY:



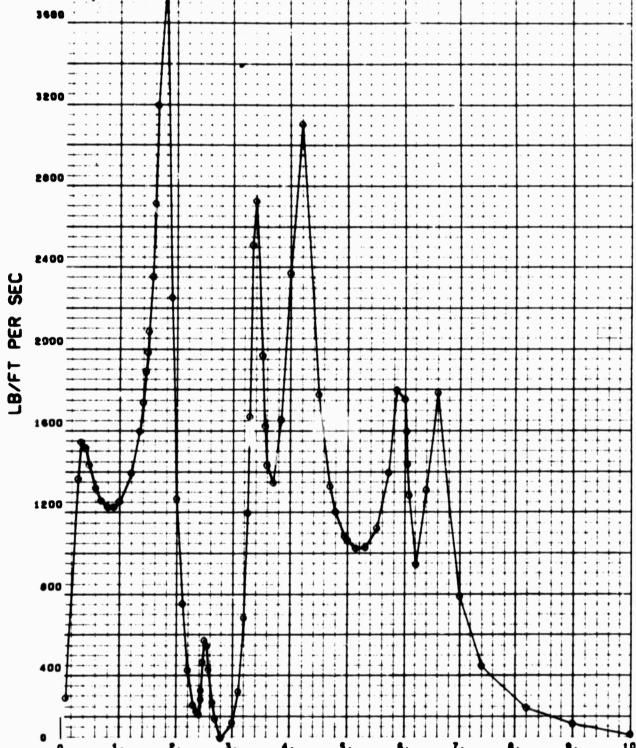
GROSS WEIGHT:

CUTOFF FREQUENCY:

10 CPS

ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0. 85



FREQUENCY (CPS)

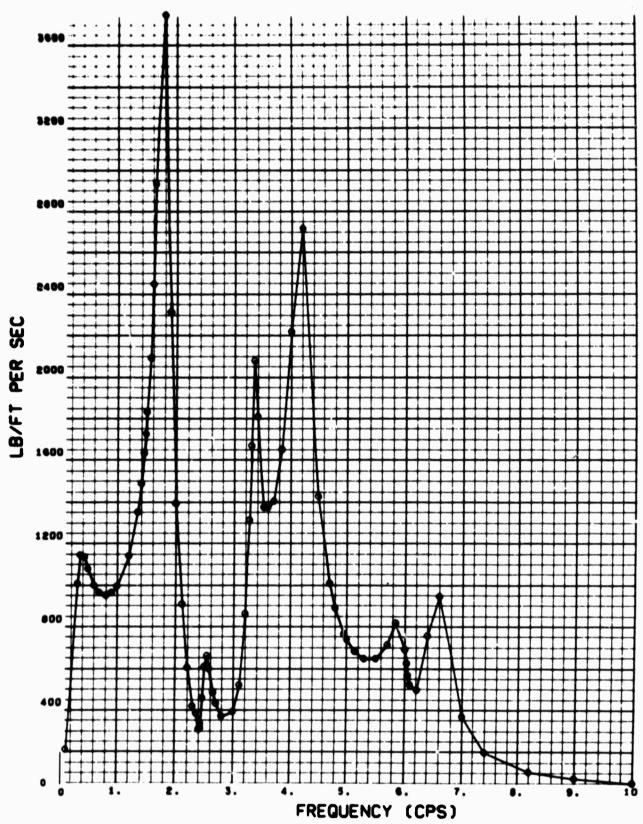
ANALYSIS CONDITION 2 WEIGHT CONDITION B

268, 000 LB 24, 000 FT 0. 85

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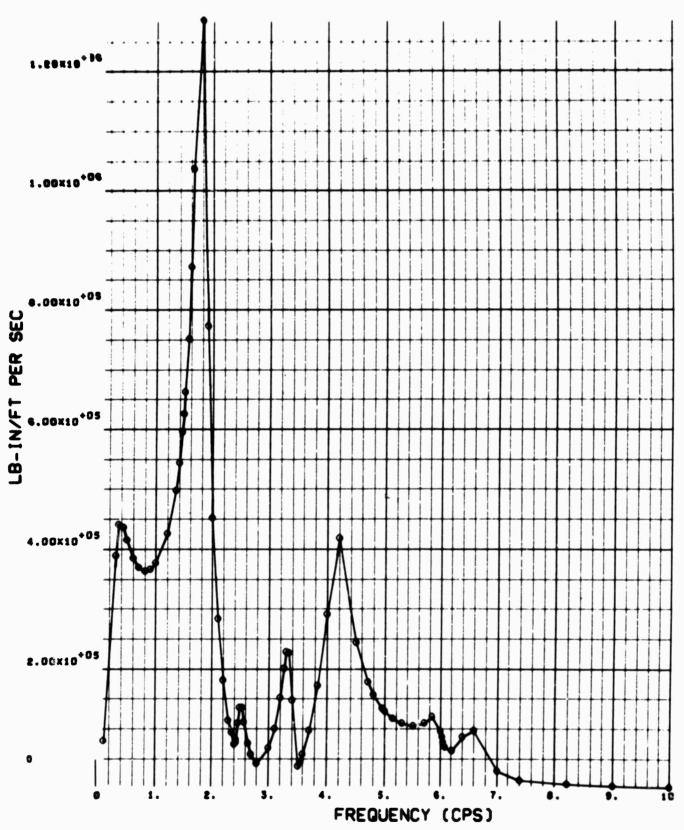


WING SHEAR RESPONSE, 40.06 PERCENT SEMISPAN

CUTOFF FREQUENCY:

10 CPS

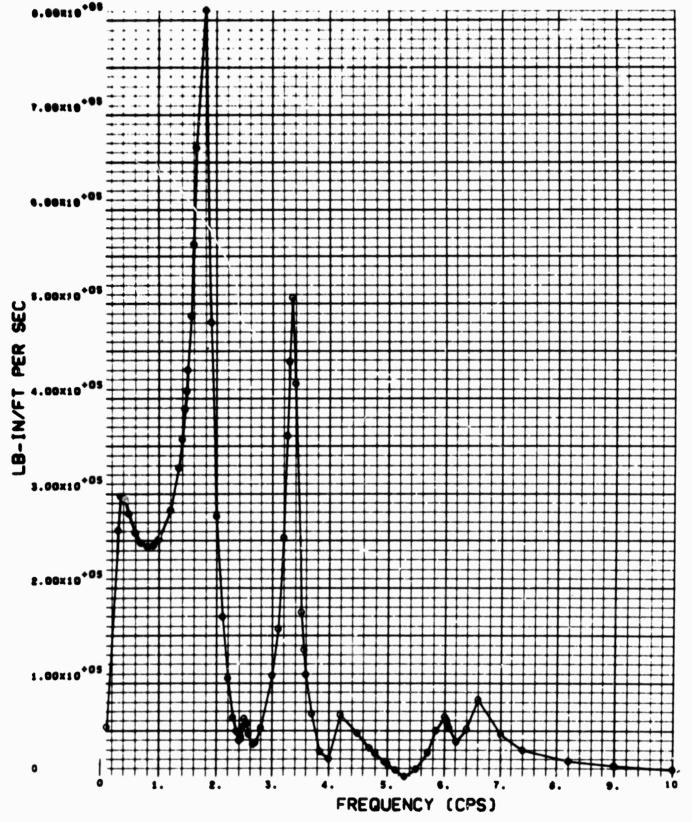
GROSS WEIGHT: ALTITUDE: MACH NUMBER: 268, 000 LB 24, 000 FT 0. 85



WING BENDING MOMENT RESPONSE, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0. 85 **CUTOFF FREQUENCY:**



WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0. 85 **CUTOFF FREQUENCY:**

10 CPS

IN-LB/FT PER SEC 2.00×10⁺⁰⁵ 1.00×10⁺⁰⁵

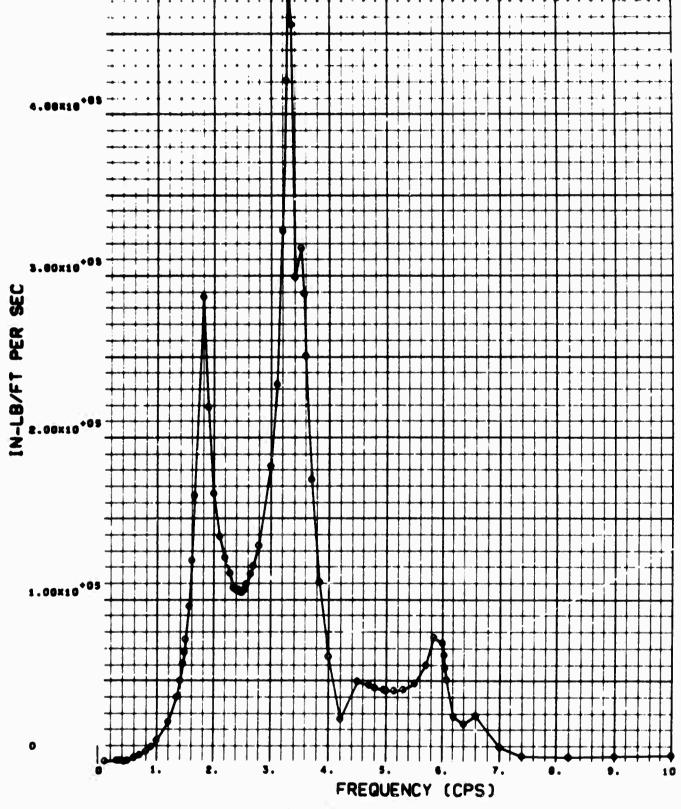
WING TORQUE RESPONSE, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

CUTOFF FREQUENCY:

10 CPS

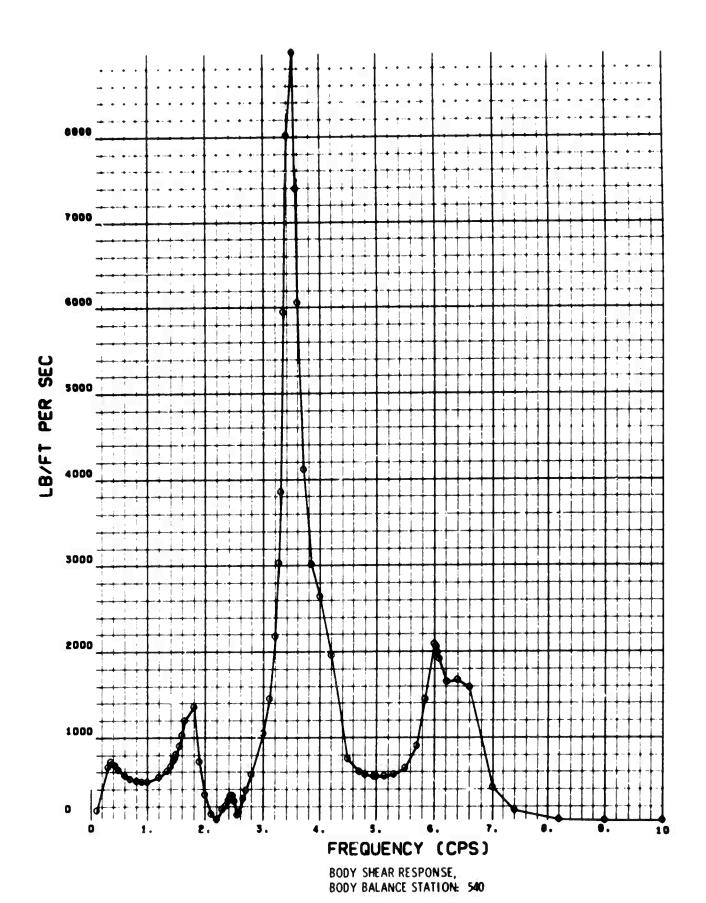
268, 000 LB 24, 000 FT 0. 85



WING TORQUE RESPONSE, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

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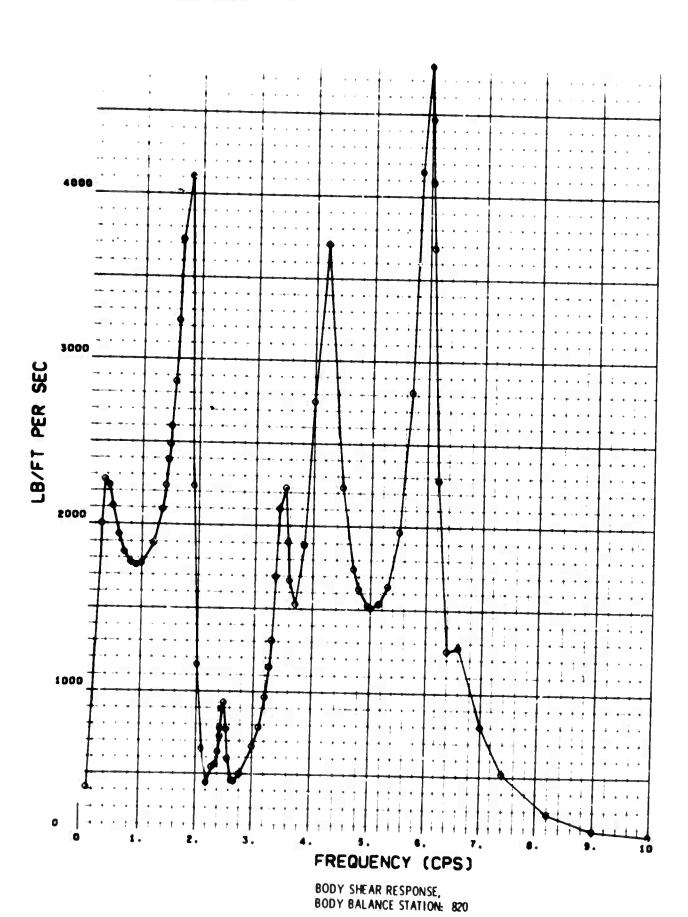


268, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY-

10 CPS

GROSS WEIGHT: ALTITUDE: MACH NUMBER:



GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0, 85

CUTOFF FREQUENCY:

10 CPS

1.80×10+06 1.00×10*06 LB-IN/FT PER SEC 4.00x10⁺⁰⁸ 2.00x10⁺⁰⁵ FREQUENCY (CPS)

> BODY BENDING MOMENT RESPONSE, BODY BALANCE STATION: 540

GROSS WEIGHT:

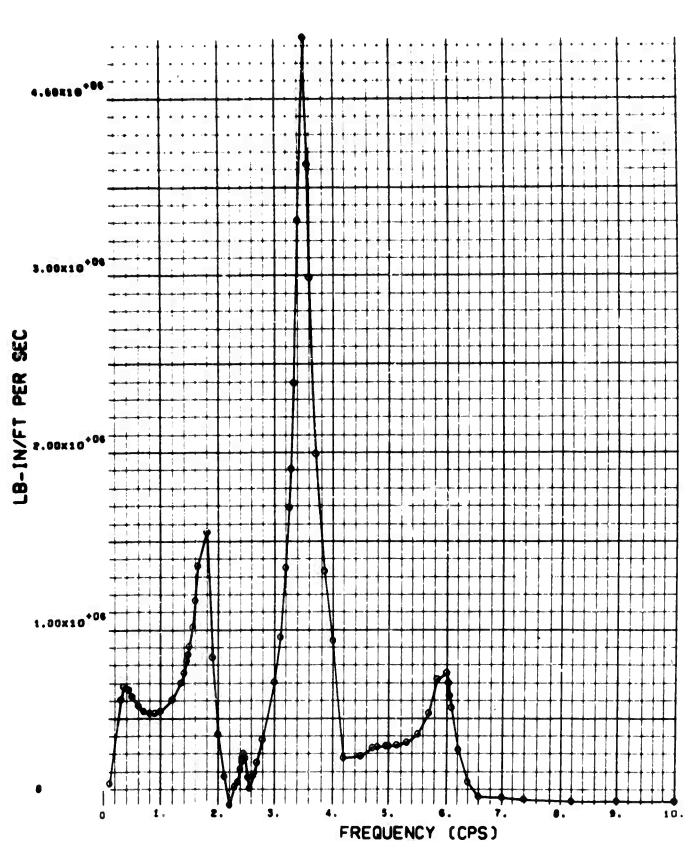
268, 000 LB 24, 000 FT

CUTOFF FREQUENCY:

10 CPS

ALTITUDE: MACH NUMBER:

0.85



BODY BENDING MOMENT RESPONSE, BODY BALANCE STATION: 820

GROSS WEIGHT:

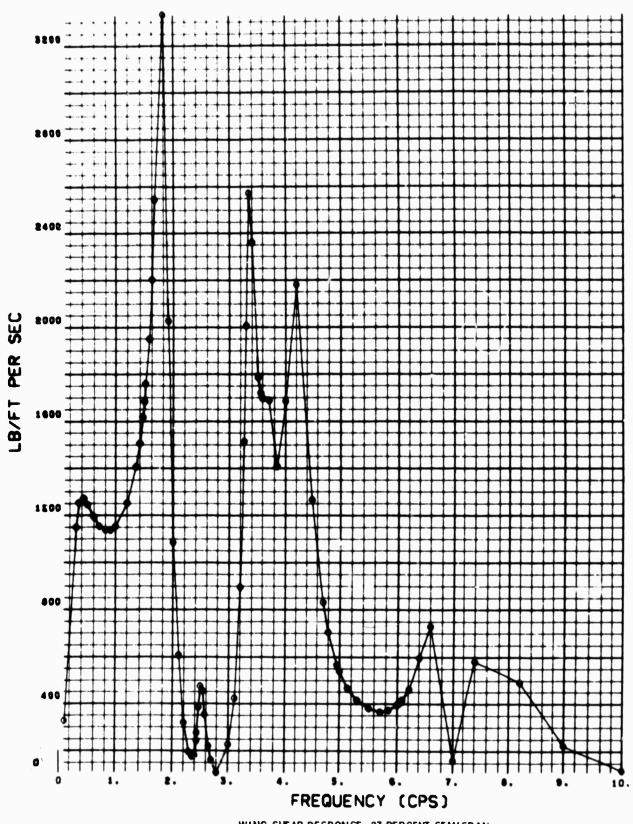
190, 590 LB

CUTOFF FREQUENCY:

10 CPS

ALTITUDE: MACH NUMBER: 24,000 FT

0. 85



WING SHEAR RESPONSE, 27 PERCENT SEMISPAN

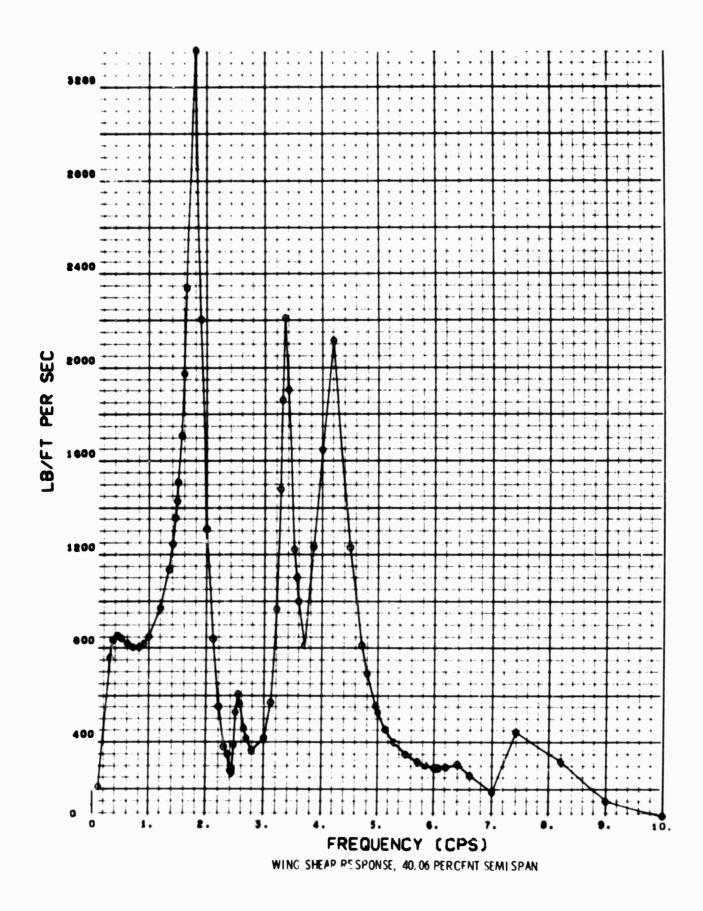
ANALYSIS CONDITION 3 WEIGHT CONDITION C

190, 590 LB CUTOFF FREQUENCY:

10 CPS

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

24, 000 FT 0, 85

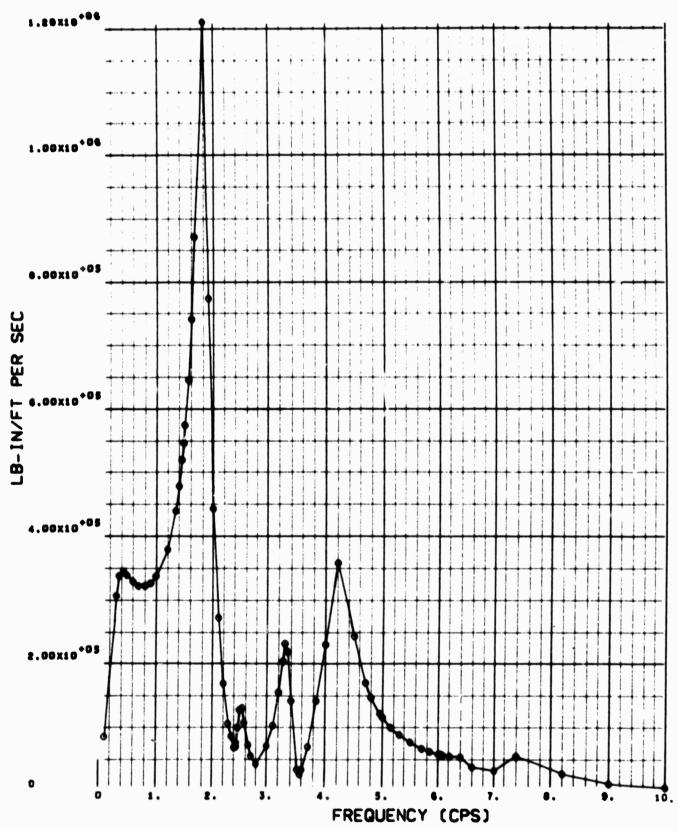


44

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY:



WING BENDING MOMENT RESPONSE, 27 PERCENT SEMISPAN

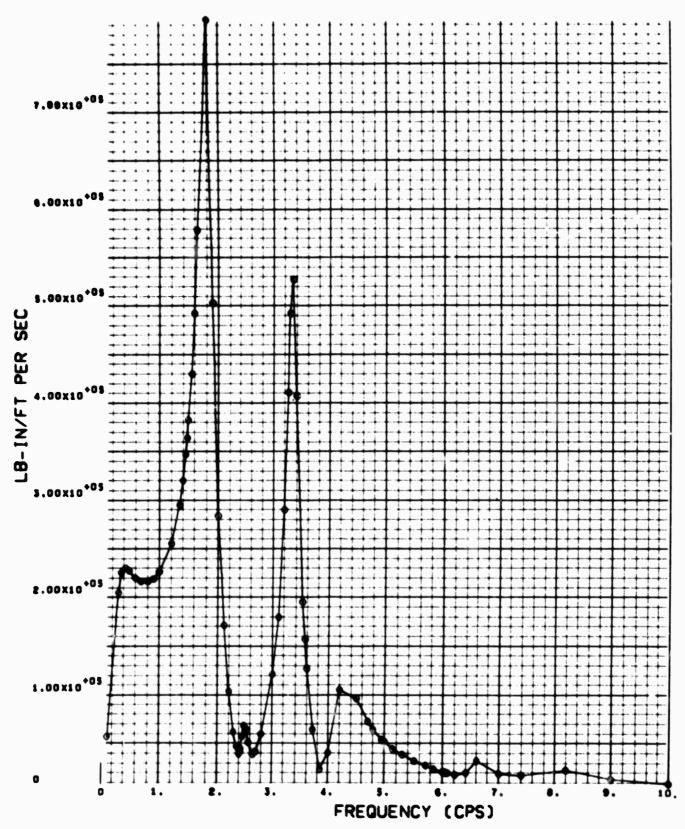
ANALYSIS CONDITION 3 WEIGHT CONDITION C

GROSS WEIGHT:

190, 590 LB 24, 000 FT 0. 85 **CUTOFF FREQUENCY:**

10 CPS

ALTITUDE: MACH NUMBER:

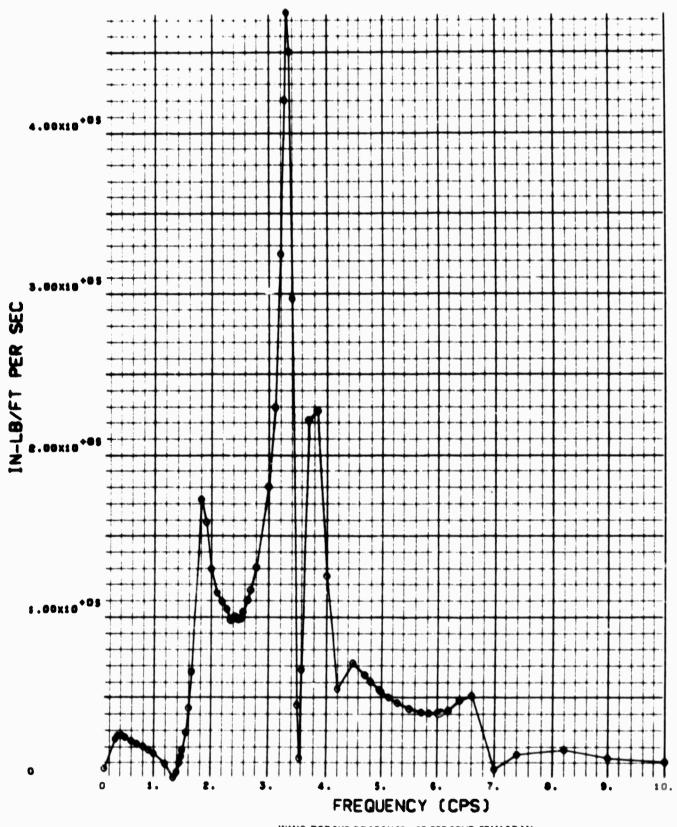


WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY:



WING TORQUE RESPONSE, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 3 WEIGHT CONDITION C

GROSS WEIGHT:

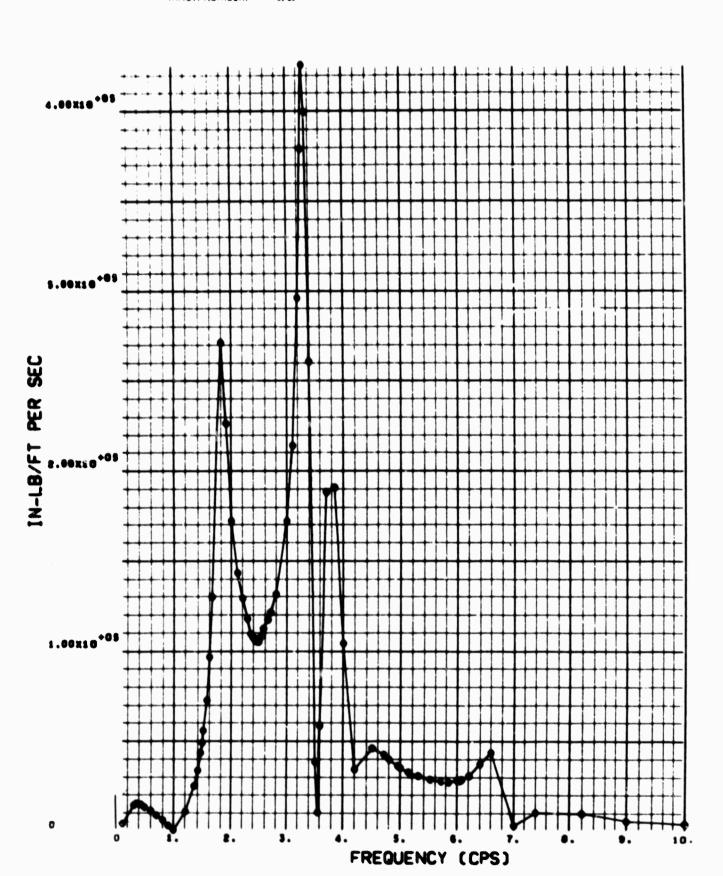
190, 590 LB 24, 000 FT

CUTOFF FREQUENCY:

10 CPS

ALTITUDE: MACH NUMBER:

0.85



WING TORQUE RESPONSE, 40.06 PERCENT SEMISPAN

GROSS WEIGHT:

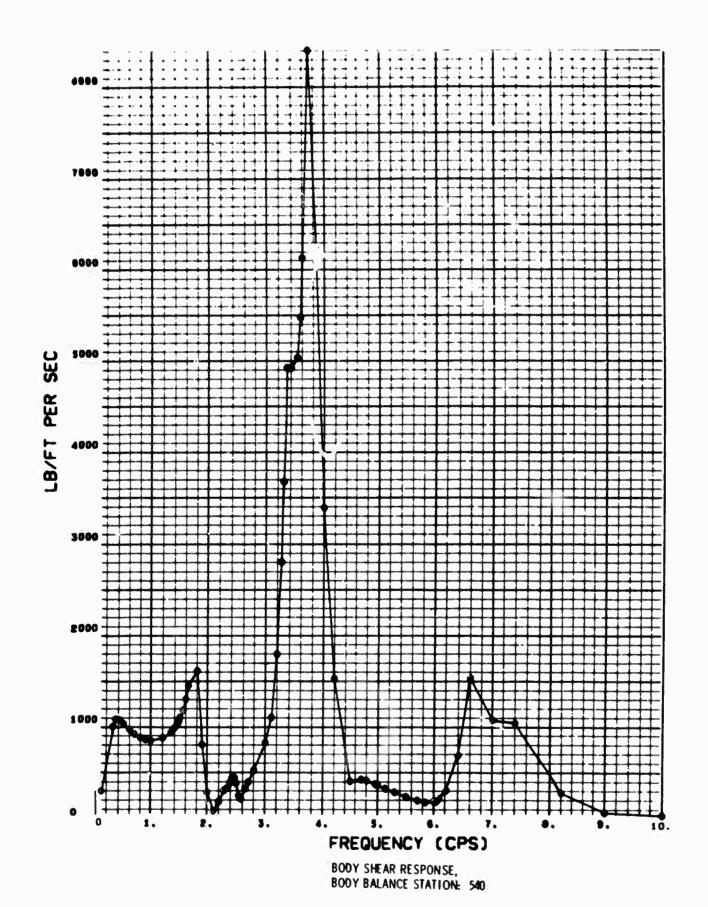
190, 590 LB 24, 000 FT

CUTOFF FREQUENCY

10 CPS

ALTITUDE:

MACH NUMBER: 0.85



GROSS WEIGHT:

190, 590 LB 24, 000 FT

CUTOFF FREQUENCY:

10 CPS

ALTITUDE: MACH NUMBER:

0.85

LB/FT PER SEC 5000 1600

BODY SHEAR RESPONSE, BODY BALANCE STATION: 820

GROSS WEIGHT:

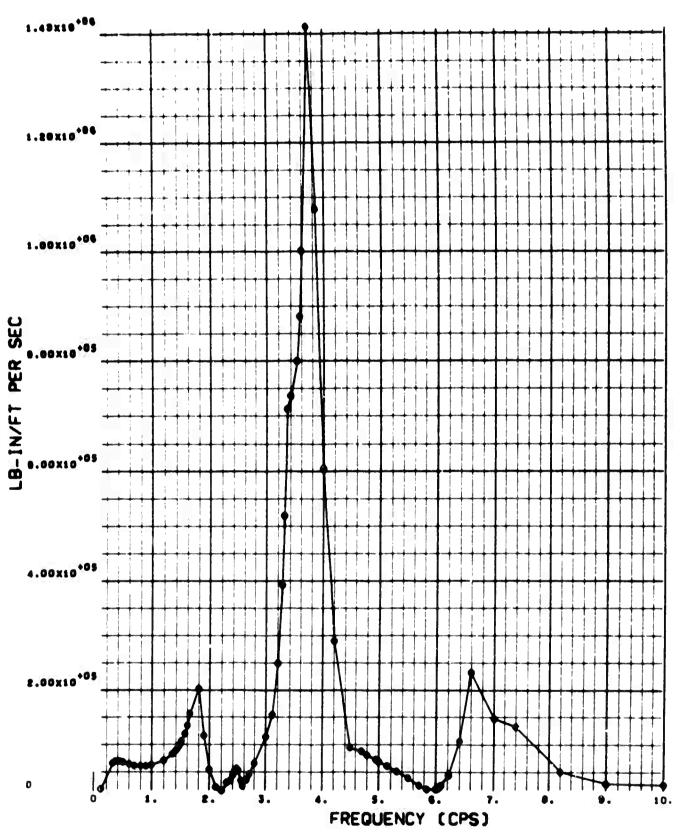
190, 590 LB 24, 000 FT

CUTOFF FREQUENCY:

10 CPS

ALTITUDE

MACH NUMBER: 0.85



BODY BENDING MOMENT RESPONSE, BODY BALANCE STATION: 540

190, 590 LB

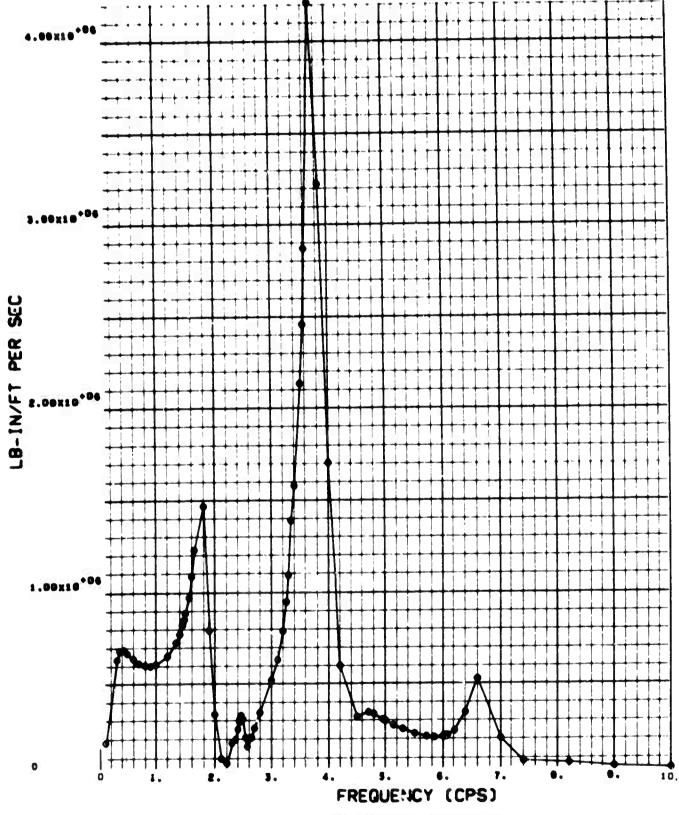
GROSS WEIGHT:

CUTOFF FREQUENCY:

10 CPS

ALTITUDE: MACH NUMBER:

24, 000 FT 0. 85



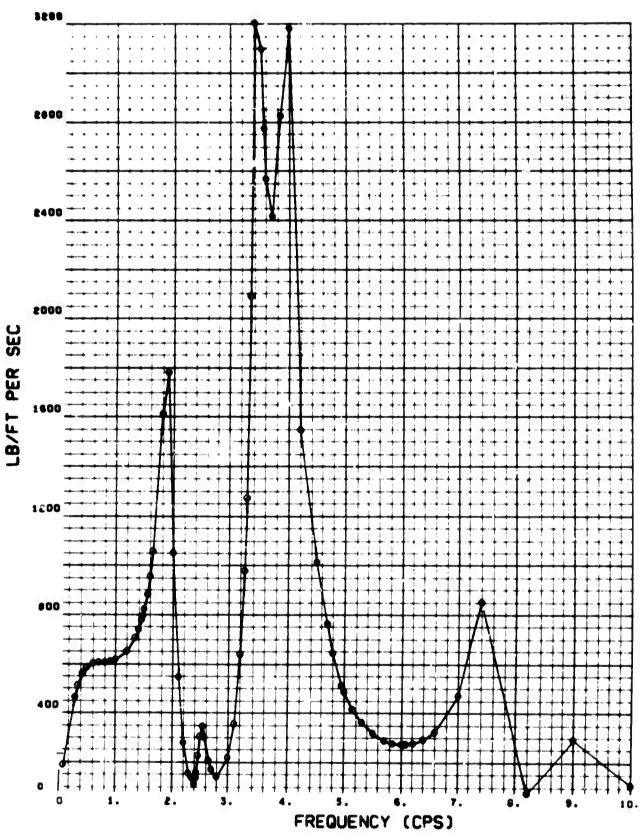
BODY BENDING MOMENT RESPONSE, BODY BALANCE STATION: 820

GROSS WEIGHT:

CUTOFF FREQUENCY:

10 CPS

107, 260 LB 24, 000 FT 0. 85 ALTITUDE: MACH NUMBER:



WING SHEAR RESPONSE, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 4 WEIGHT CONDITION D

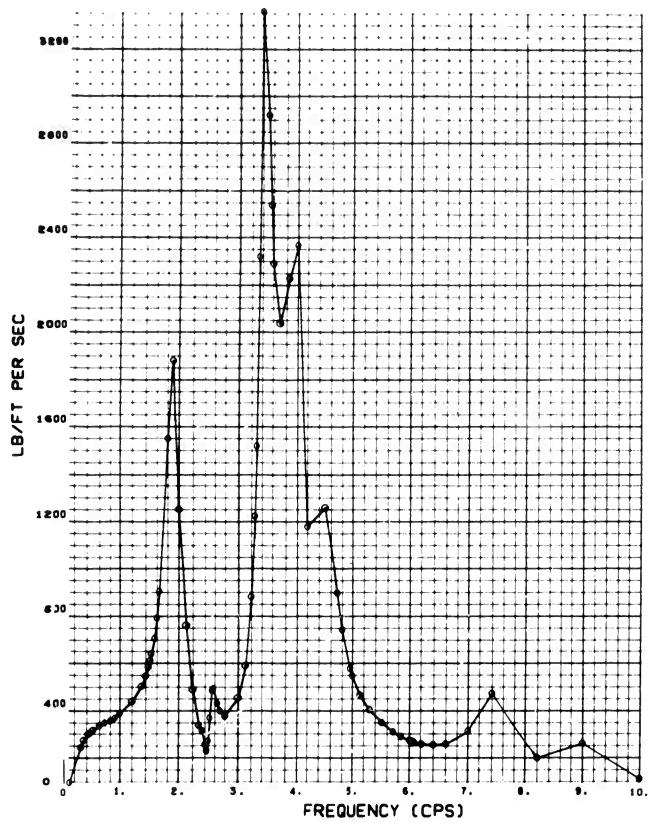
GROSS WEIGHT:

107, 260 LB 24, 000 FT

CUTOFF FREQUENCY:

10 CPS

ALTITUDE: , MACH NUMBER: 0.85



WING SHEAR RESPONSE, 40.06 PERCENT SEMISPAN

ANALYSIS CONDITION 4 WEIGHT CONDITION D

GROSS WEIGHT:

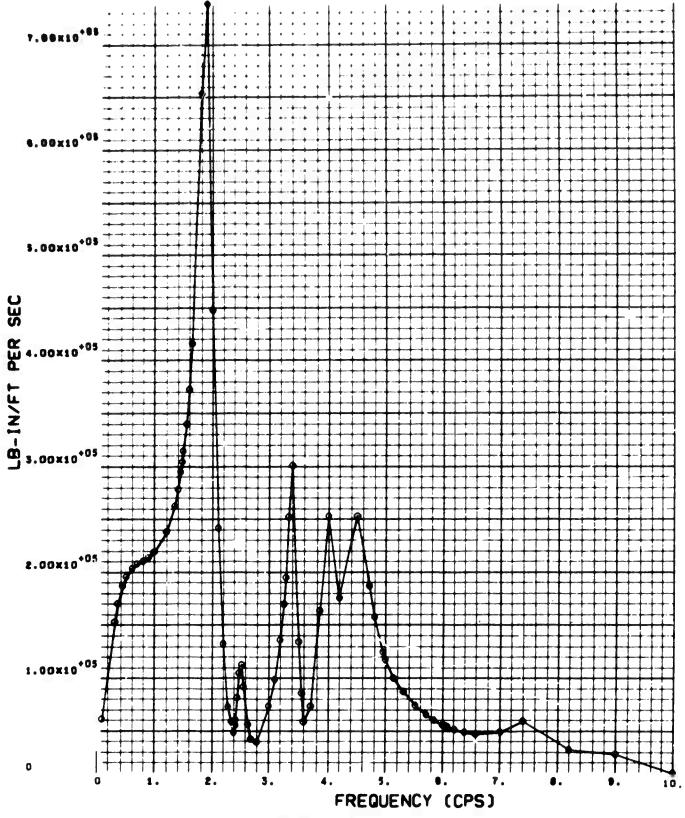
107, 260 LB 24, 000 FT

CUTOFF FREQUENCY:

10 CPS

ALTITUDE:

0.85 MACH NUMBER:



WING BENDING MOMENT RESPONSE, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 4 WEIGHT CONDITION D

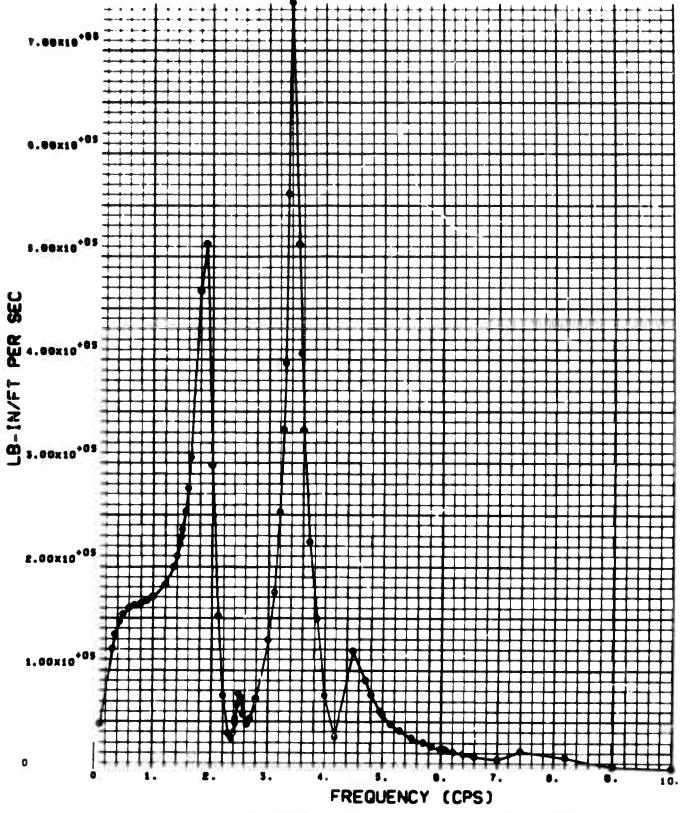
GROSS WEIGHT: ALTITUDE:

CUTOFF FREQUENCY:

10 CPS

107, 260 LB 24, 000 FT

MACH NUMBER: 0.85



WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMISPAN

ANALYSIS CONDITION 4 WEIGHT CONDITION D

GROSS WEIGHT:

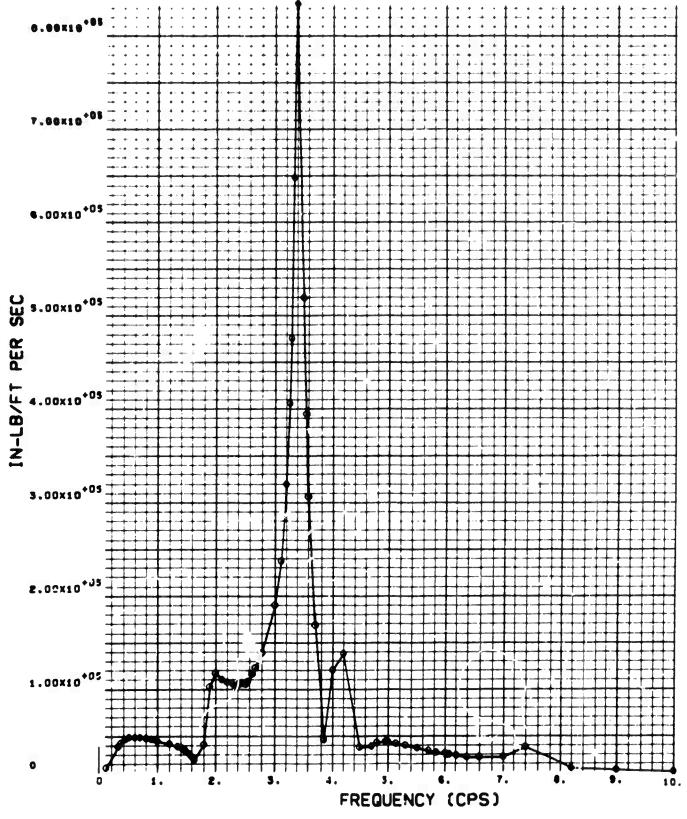
107, 260 LB 24, 000 FT

CUTOFF FREQUENCY:

10 CPS

ALTITUDE:

MACH NUMBER: 0.85



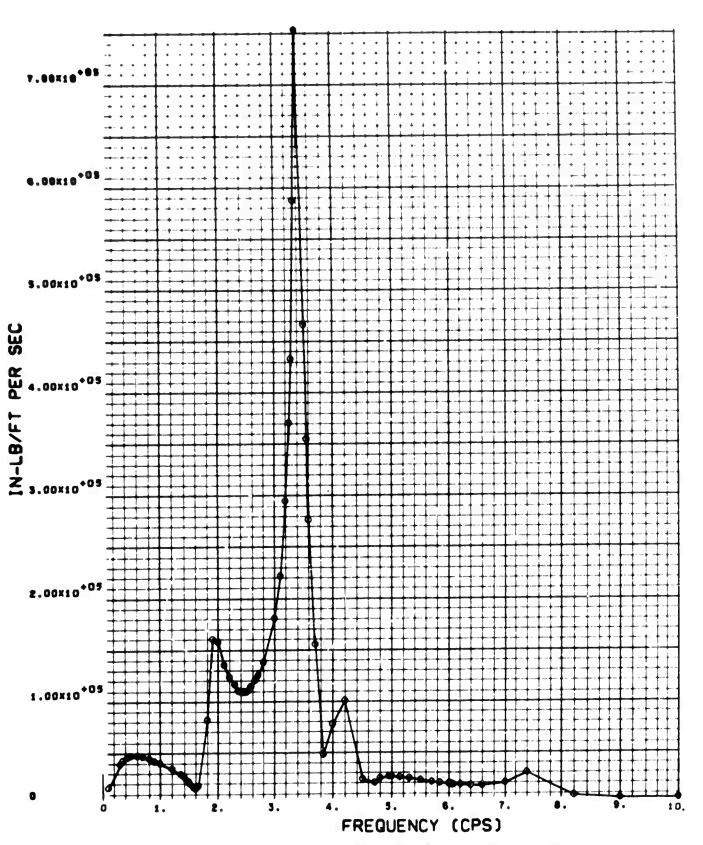
WING TORQUE RESPONSE, 27 PERCENT SEMISPAN

GROSS WEIGHT:

, 260 LB CUTOFF FREQUENCY:

10 CPS

ALTITUDE: MACH NUMBER: 107, 260 LB 24, 000 FT 0. 85



WING TORQUE RESPONSE, 40.06 PERCENT SEMISPAN

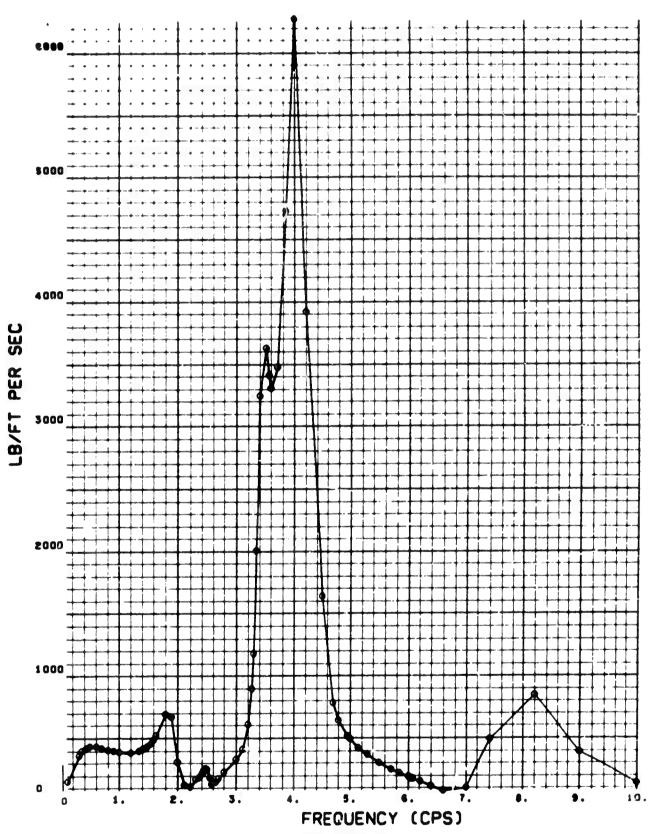
ANALYSIS CONDITION 4 WEIGHT CONDITION D

GROSS WEIGHT:

CUTOFF FREQUENCY:

TUMPS

107, 260 LB 24, 000 FT 0. 85 ALTITUDE: MACH NUMBER:



BODY SHEAR RESPONSE,

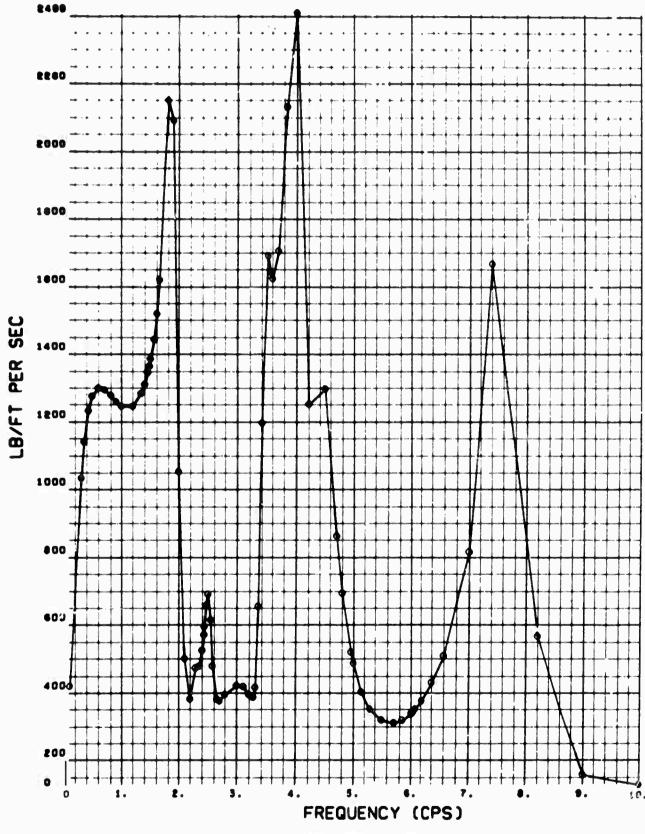
GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT

CUTOFF FREQUENCY:

10 CPS

0.85



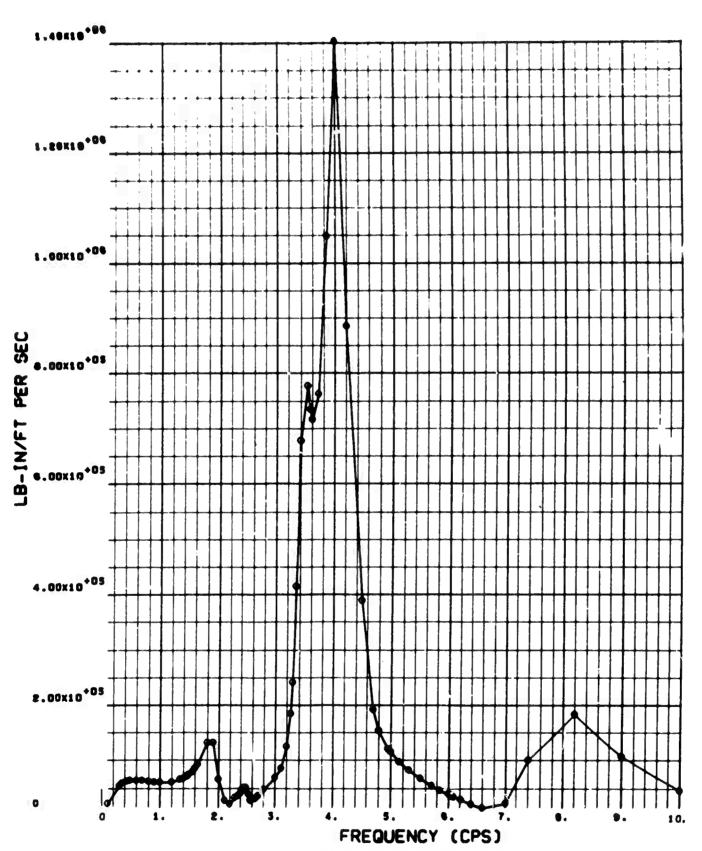
BODY SHEAR RESPONSE, BODY BALANCE STATION: 820

107, 260 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY:

10 CPS

GROSS WEIGHT: ALTITUDE: MACH NUMBER:



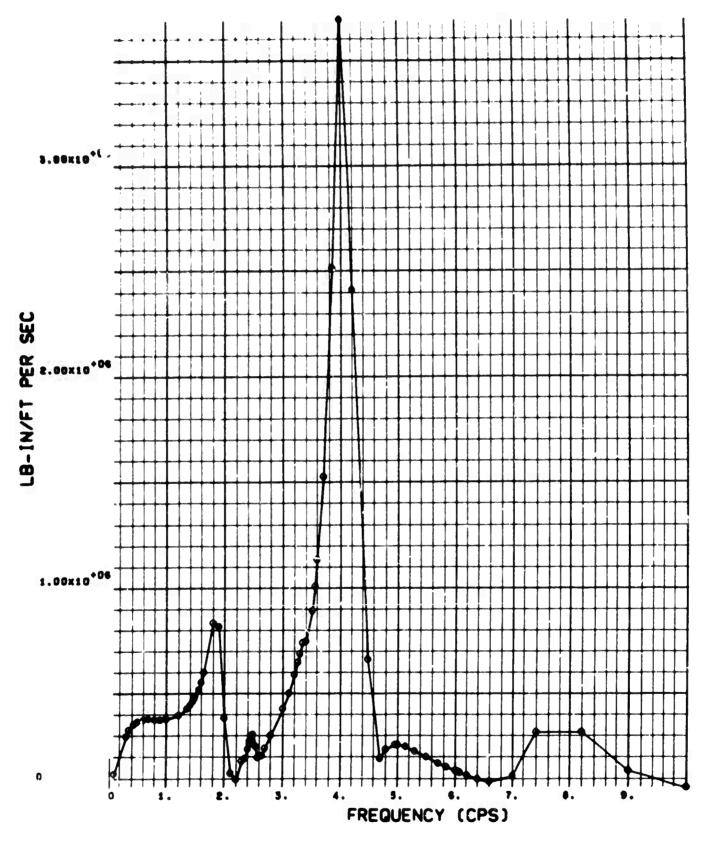
BODY BENDING MOMENT RESPONSE, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

750

107, 260 LB 24, 000 FT 0. 85 CUTOFF FREQUENCY:

10 CPS



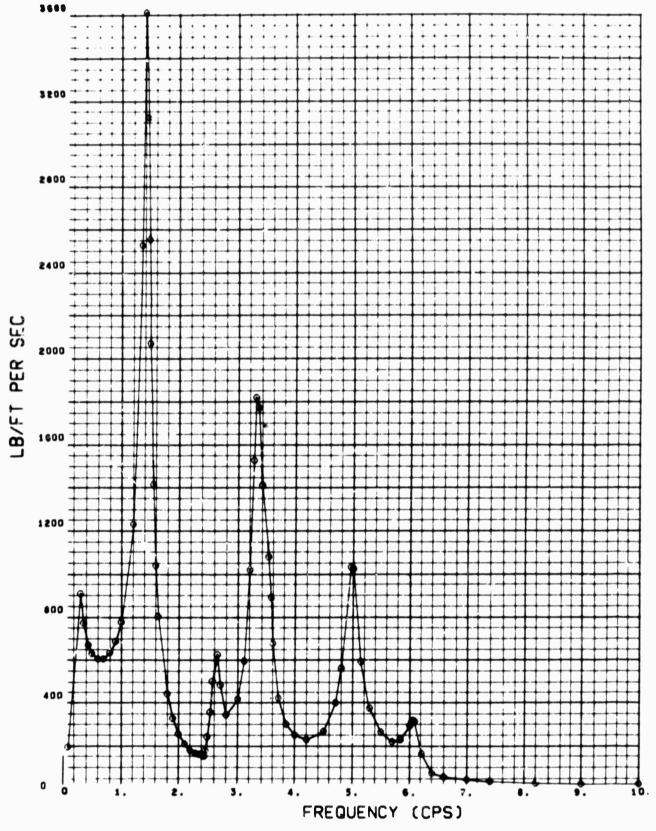
BODY BENDING MOMENT RESPONSE, BODY BALANCE STATION: 820

ANALYSIS CONDITION 5 MEIGHT CONDITION A

JROSS WEIGHT: ALTITUDE:

297, 000 LB CUTOFF FREQUENCY: 10 CPS 24, 000 FT C. 50

MACH NUMBER:



WING SHEAR RESPONSE, 27 PERCENT SEMISPAN

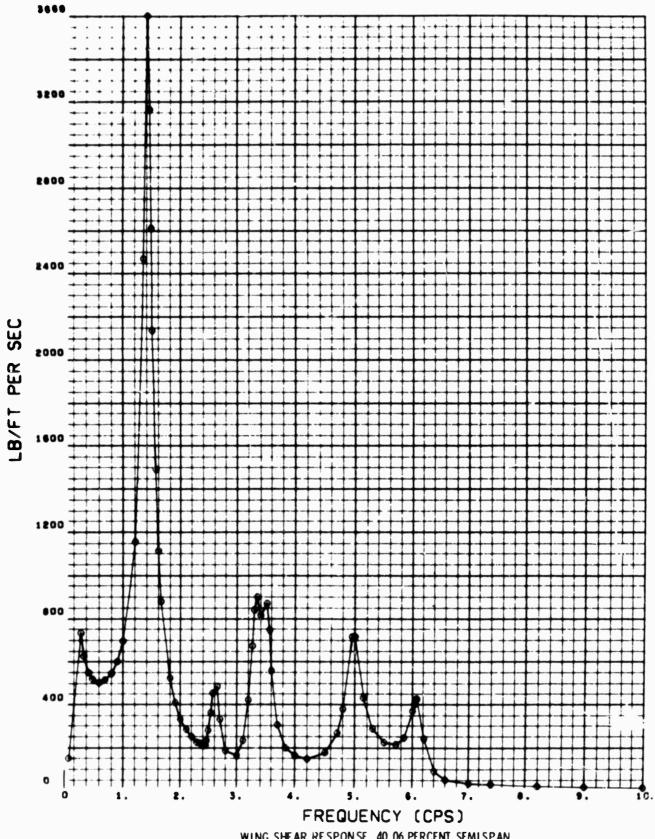
GROSS WEIGHT: ALTITUDE:

297, 000 LB 24, 000 FT 0. 50

CUTOFF FREQUENCY:

10 CPS

MACH NUMBER:



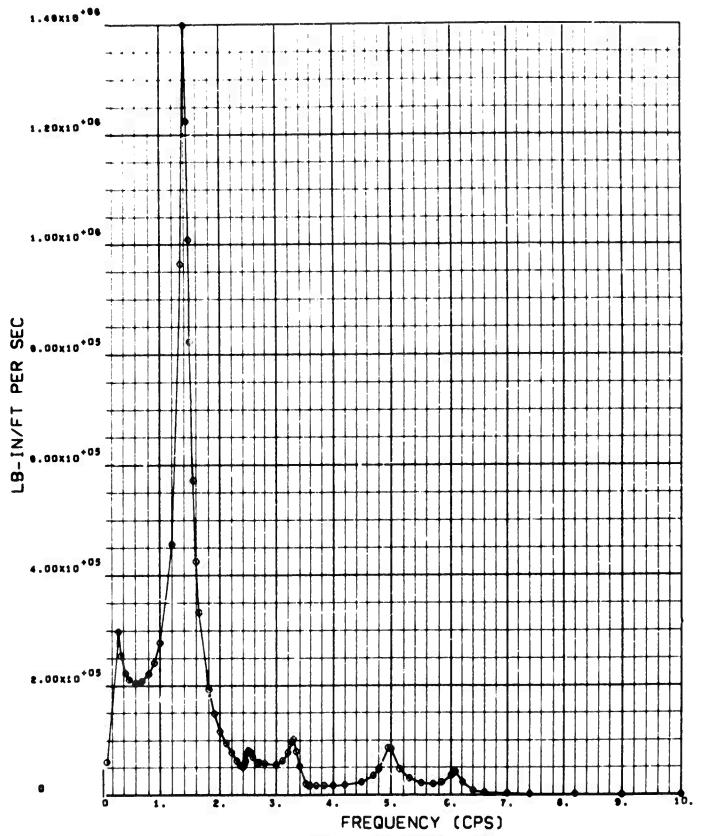
WING SHEAR RESPONSE, 40.06 PERCENT SEMISPAN

ANALYSIS CONDITION 5 WEIGHT CONDITION A

GROSS WEIGHT:

297, 000 LB CUTOFF EQUENCY: 10 CPS 24, 000 FT

A_TITUDE: MACH NUMBER: 0. 50



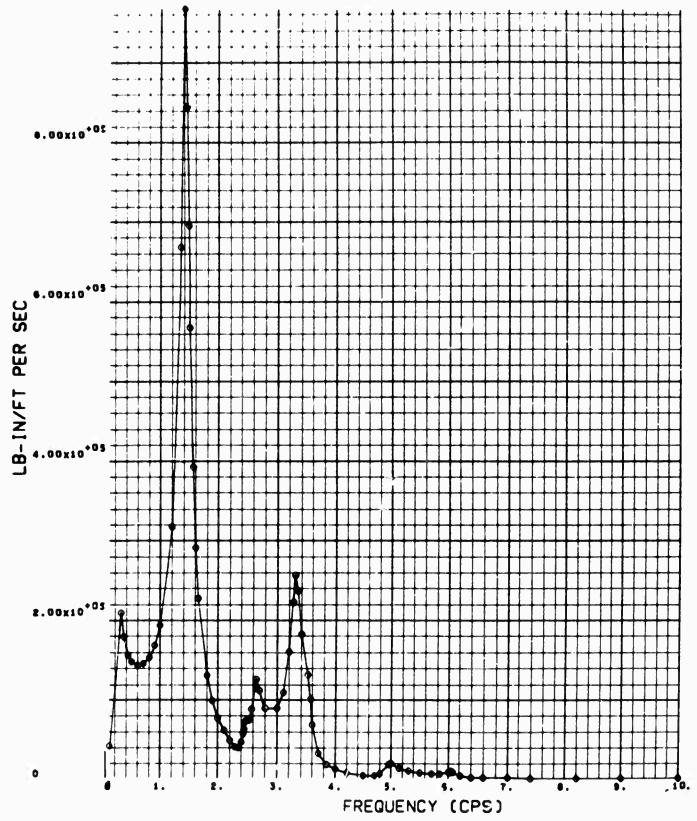
WING BENDING MOMENT RESPONSE, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 3 WEIGHT CONDITION A

CUTOFF FREQUENCY:

10 CPS

GPOSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT 0. 50



WING BENDING MOMENT RESPONSE, 40.06 PERCENT SEMISPAN

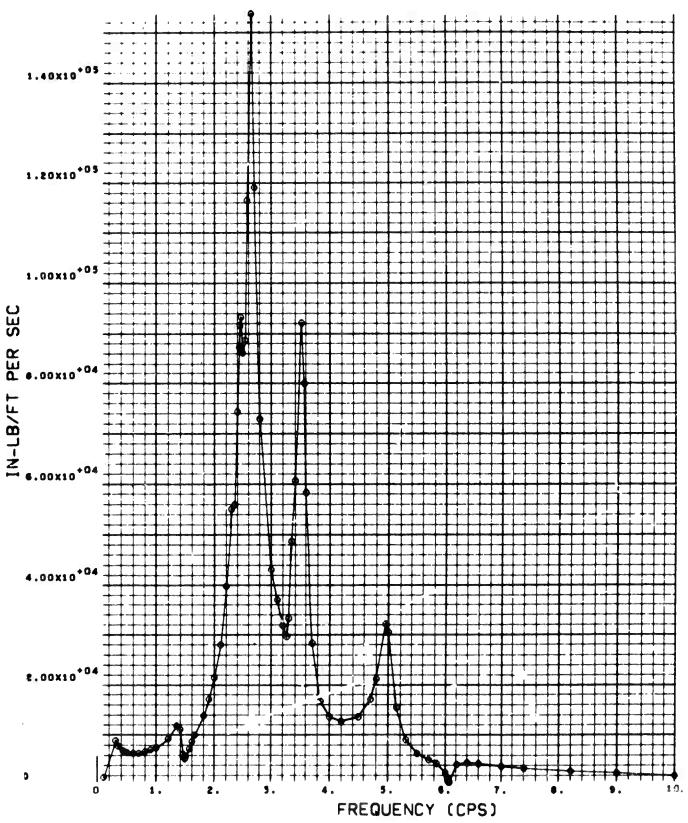
ANALYSIS CONDITION 5 WEIGHT CONDITION A

297, 000 LB 24, 000 FT 0. 50 GROSS WEIGHT:

CUTOFF FREQUENCY:

10 CPS

ALTITUDE: MACH NUMBER:



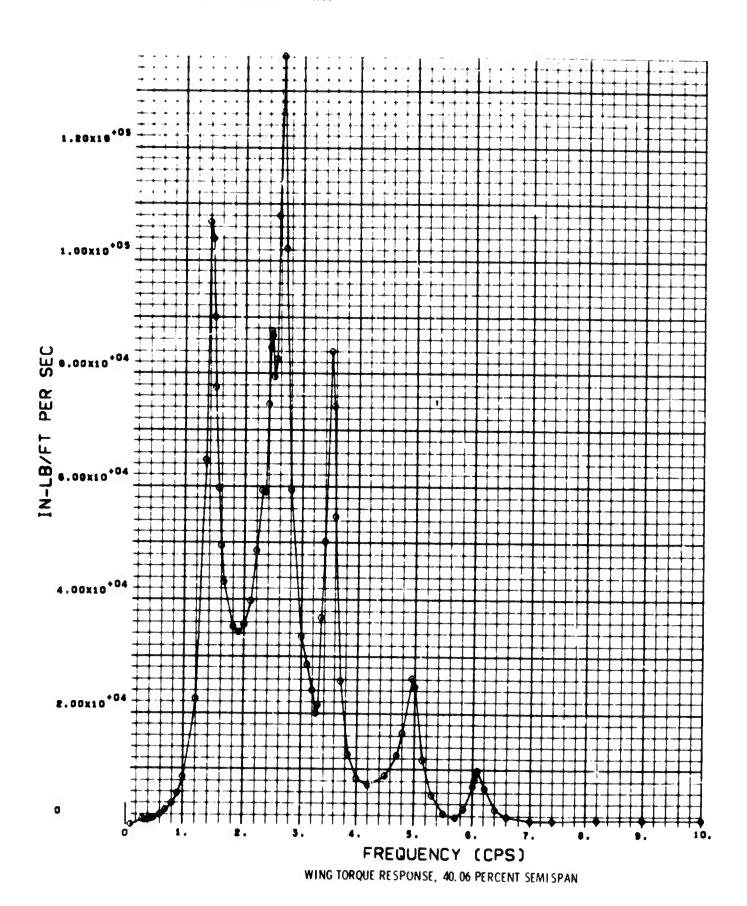
WING TORQUE RESPONSE, 27 PERCENT SEMISPAN

GROSS WEIGHT

297, 000 LB 24, 000 FT CUTOFF FREQUENCY:

10 CPS

ALTITUDE: MACH NUMBER: 0.50

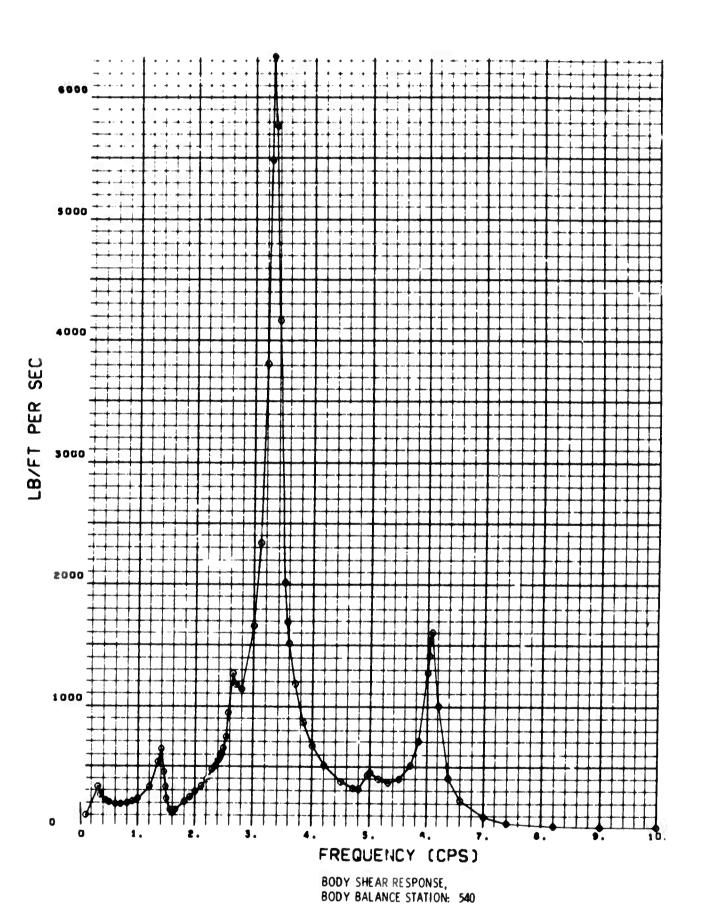


68

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT 0. 50

CUTOFF FREQUENCY:

10 CPS



ANALYSIS CONDITION 5 WEIGHT CONDITION A

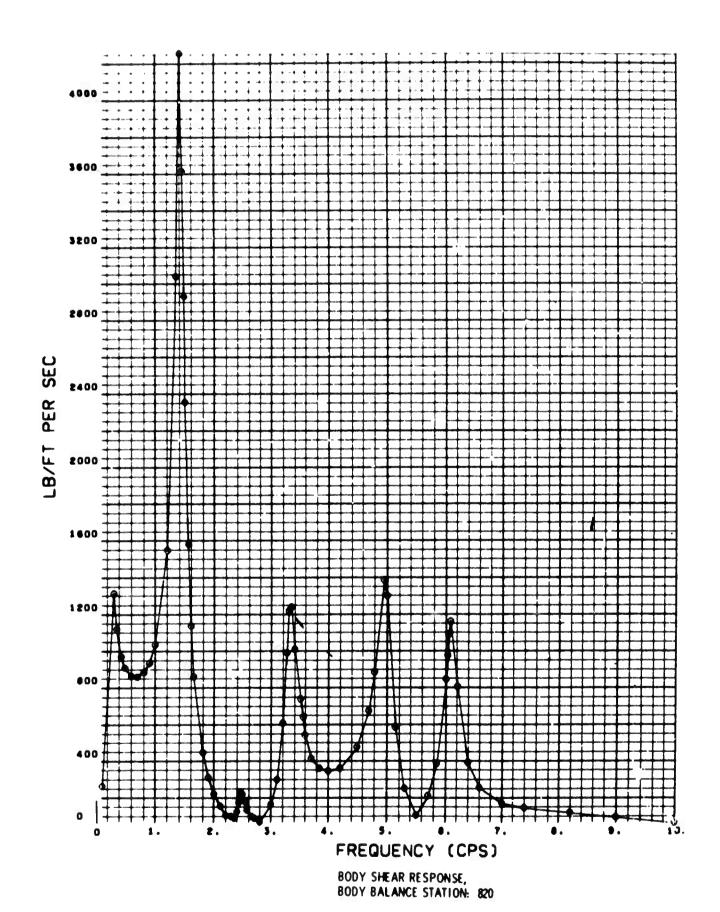
GROSS WEIGHT: ALTITUDE:

297, 000 LB 24, 000 FT

CUTOFF FREQUENCY-

10 CPS

MACH NUMBER: 0.50

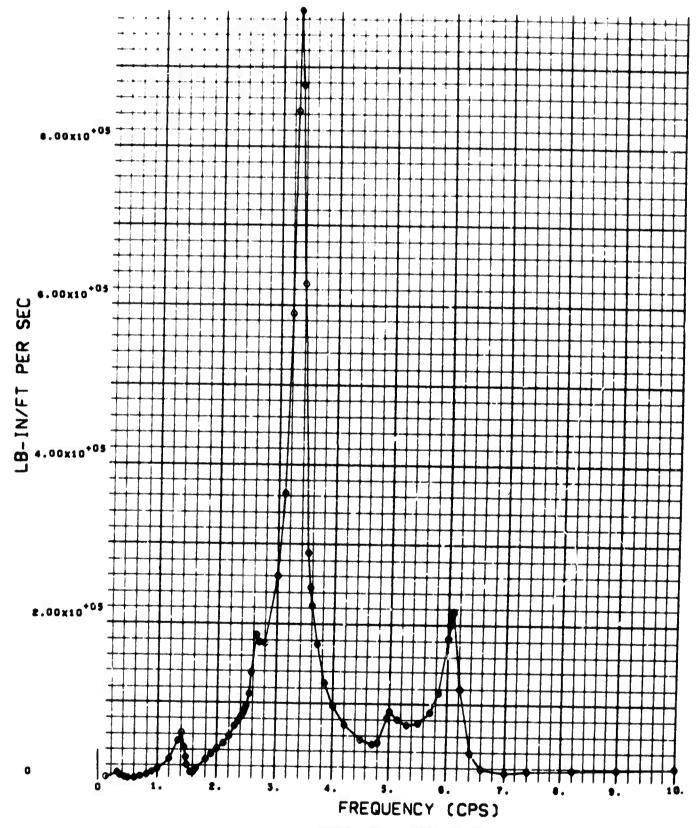


GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT CUTOFF FREQUENCY:

10 CPS

0.50



BODY BENDING MOMENT RESPONSE, BODY BALANCE STATION: 540

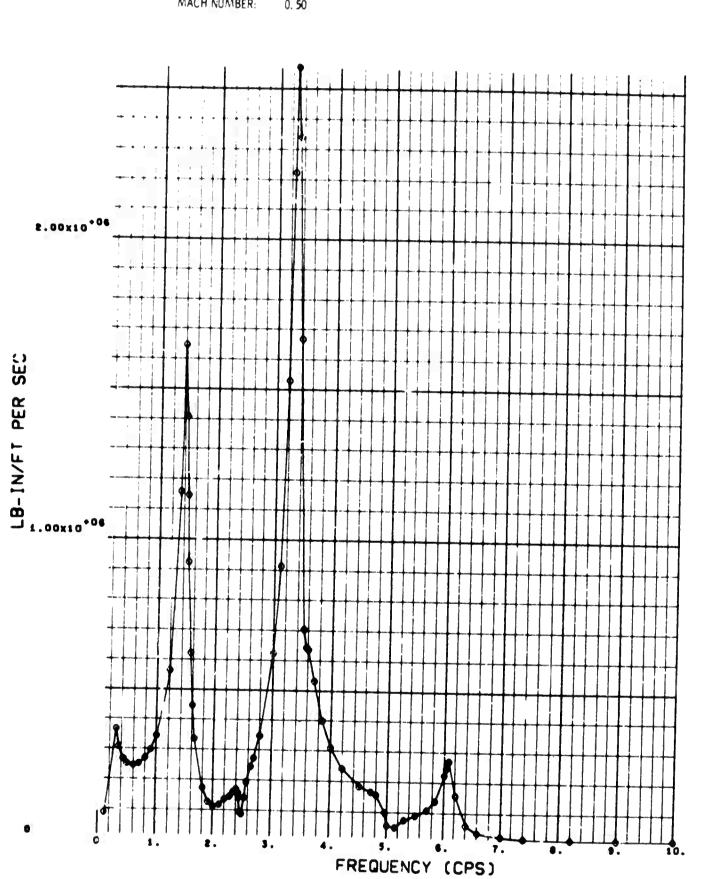
A TO SECTION TO SECURE AND SECTION OF THE PARTY AND THE PA

ANALYSIS CONDITION 5

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT 0. **5**0

CUTOFF FREQUENCY:

10 CPS



BODY BENDING MOMENT RESPONSE, BODY BALANCE STATION: 820

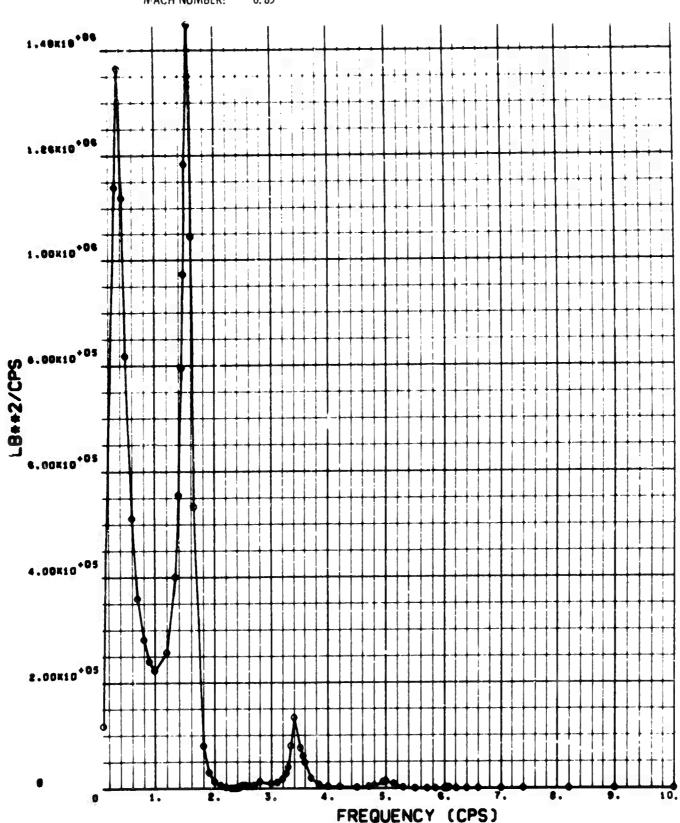
SECTION III

LOAD POWER SPECTRA

ANALYSIS CONDITION 1 WEIGHT CONDITION A

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

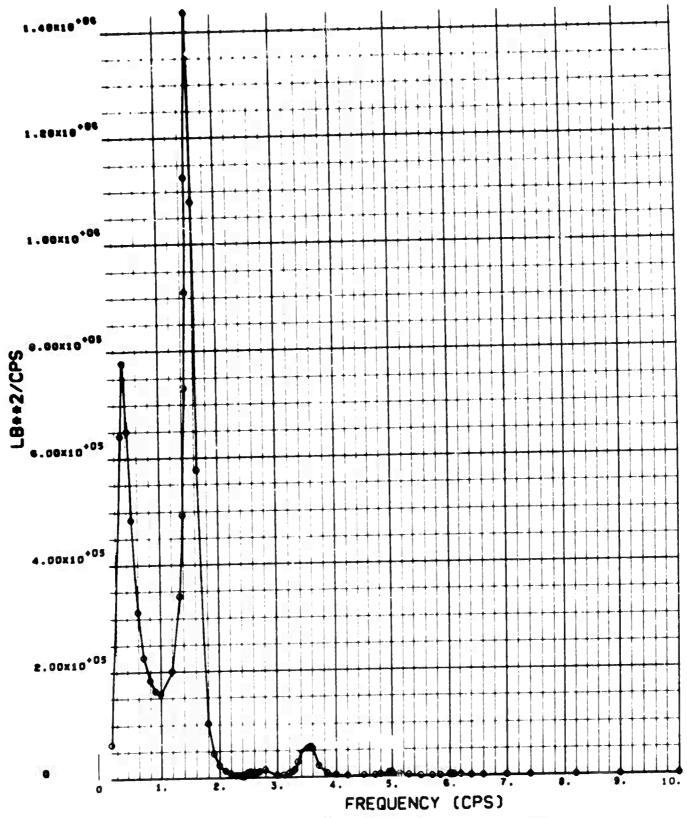
297, 000 LB 24, 000 FT 0. 85 CUTOFF FREQUENCY: 10 CPS SCALE OF-TURBULENCE: 1,000 FT



WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT 297, 000 LB 24, 000 FT 0. 85



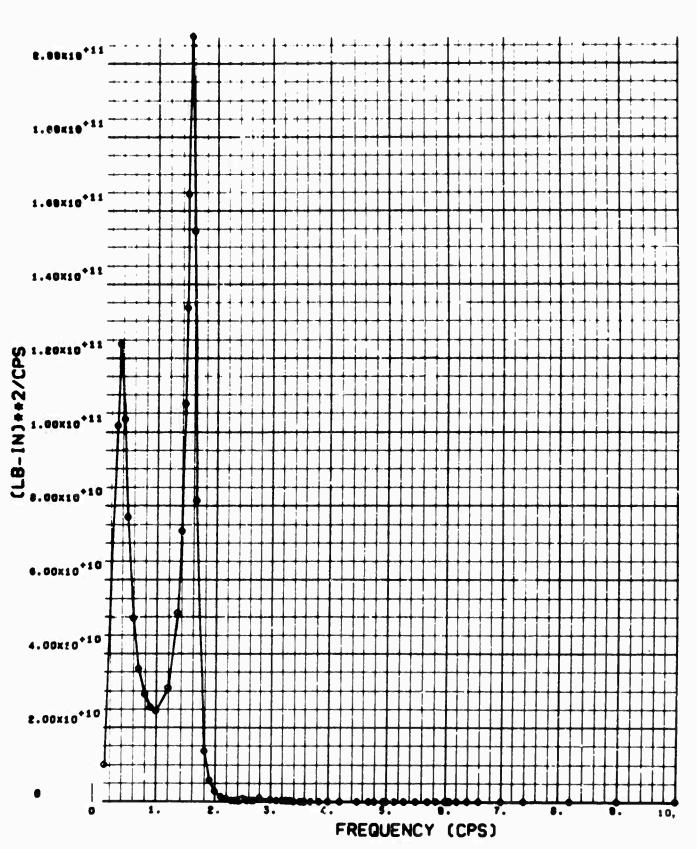
WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE:

297, 000 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

MACH NUMBER: 0.85

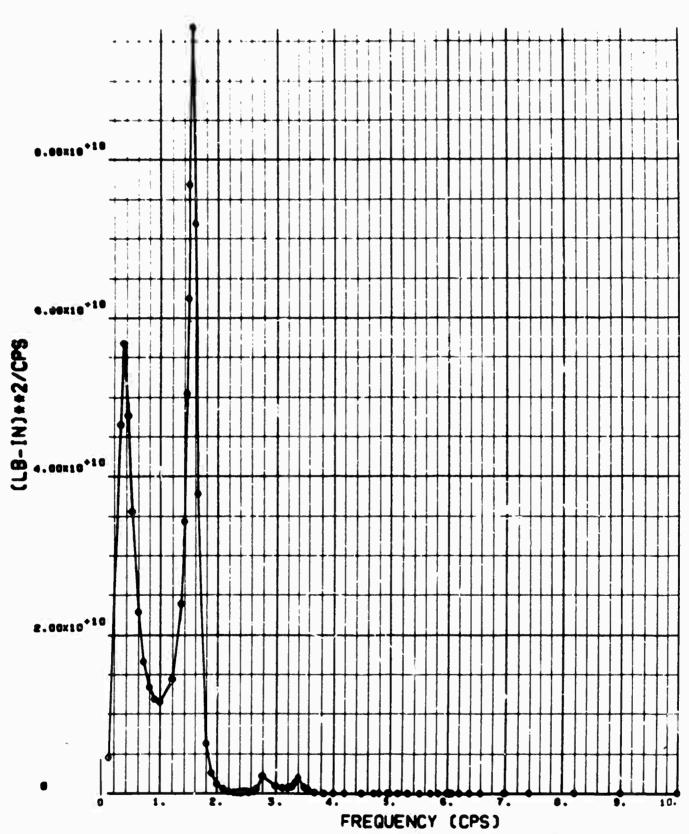


WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297,000 LB 24,000 FT 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT



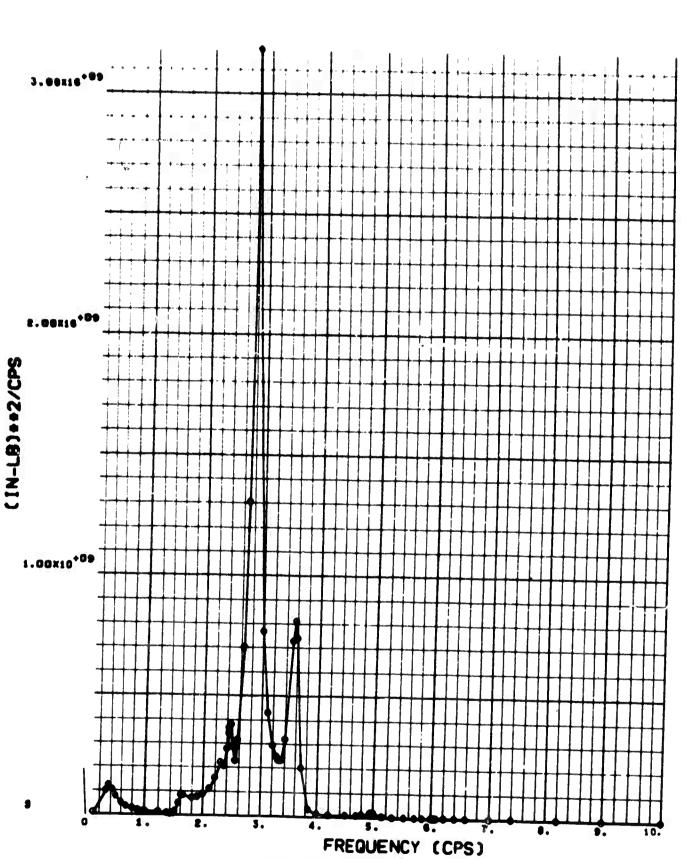
WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

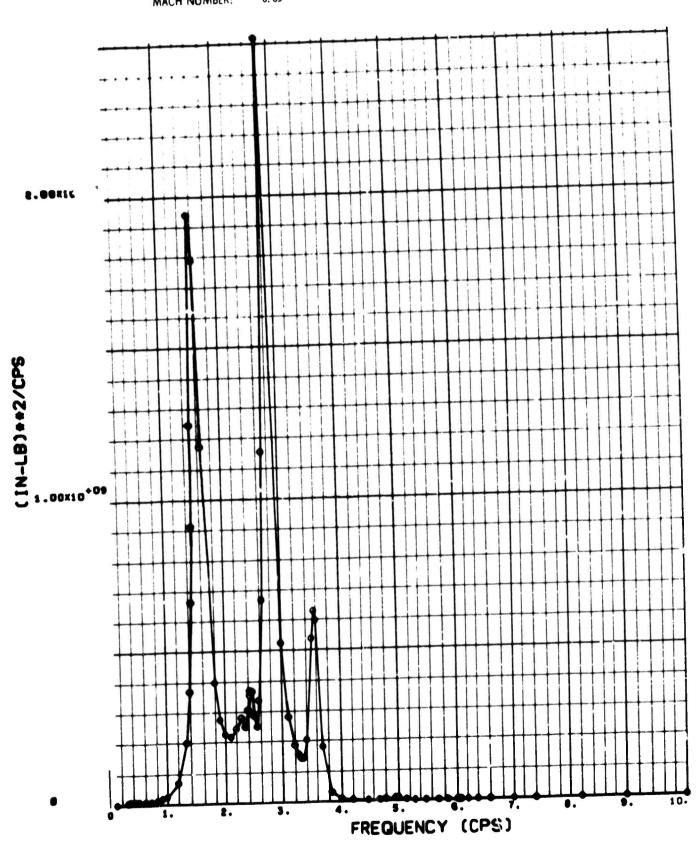
0.85



WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT 297, 000 LB 24, 000 FT 0. 85

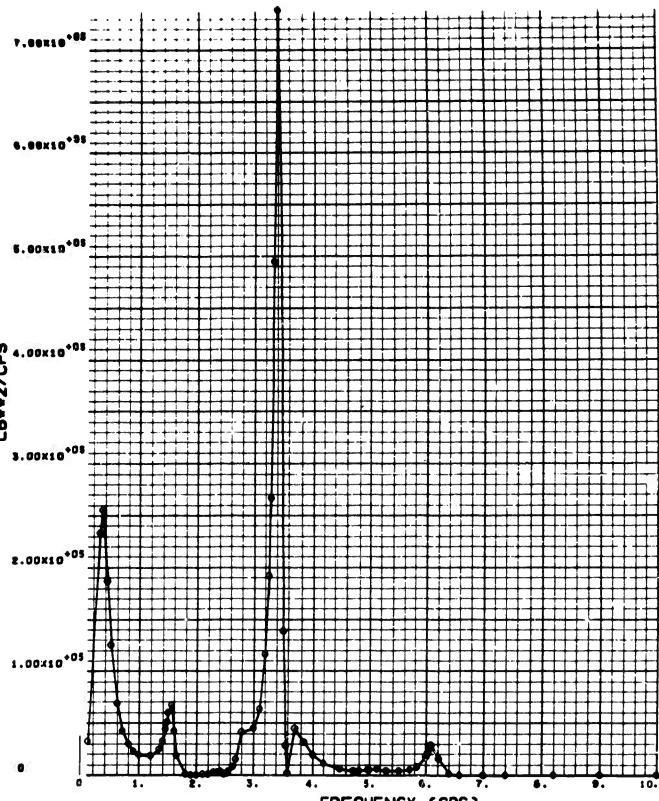


WING TORQUE SPECTRUM, 40. 06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

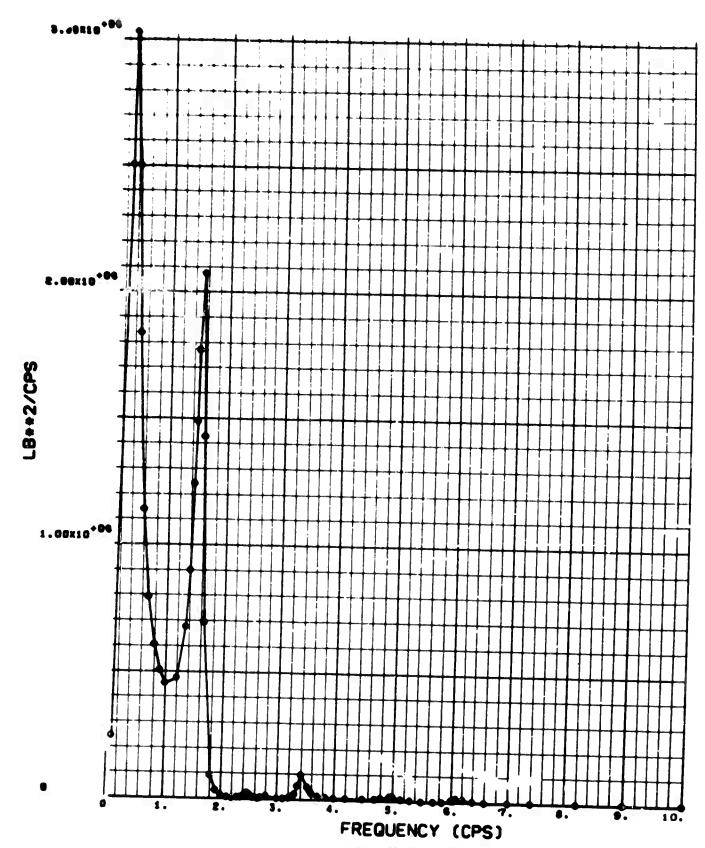


FREQUENCY (CPS) BODY SHEAR SPECTRUM, **BODY BALANCE STATION: 540**

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT

0. 85

CUTOFF FREQUENCY: CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

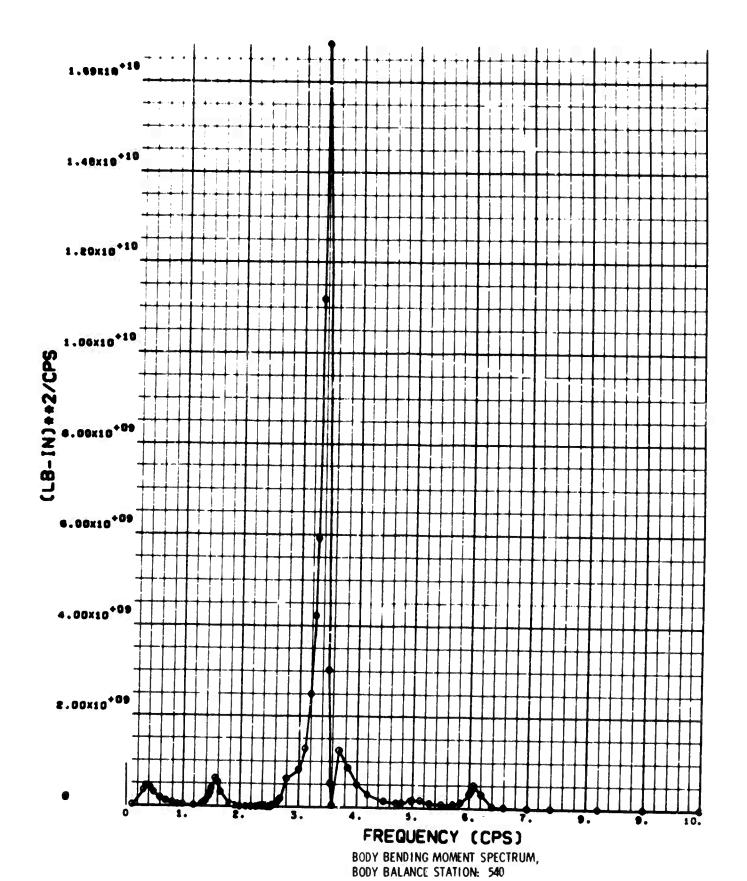


BODY SHEAR SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297,000 LB 24,000 FT 0.85 CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

10 CPS

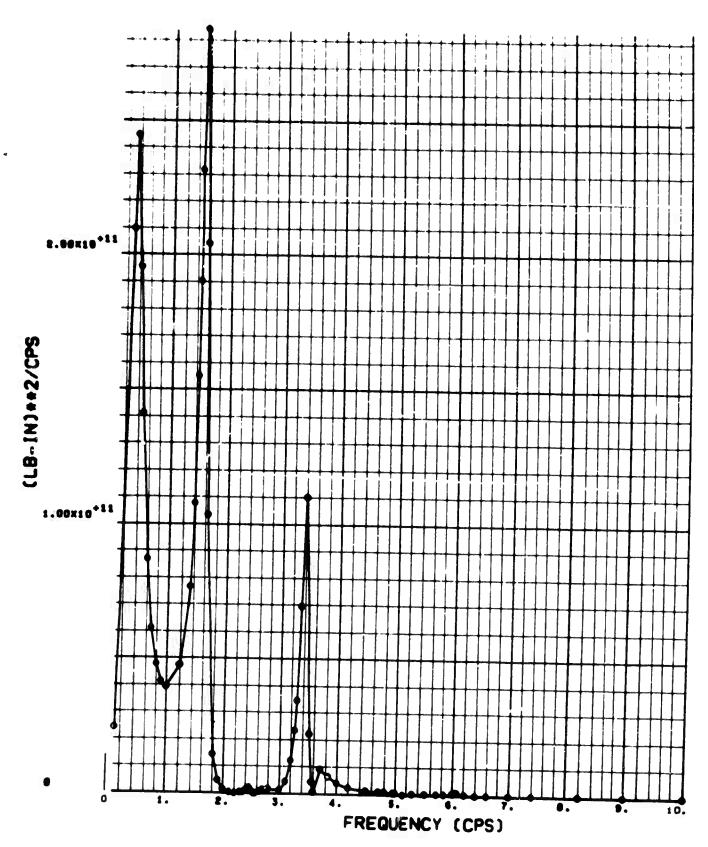


GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

10 CPS



BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297,000 LB 24,000 FT 0.85

10 CPS CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

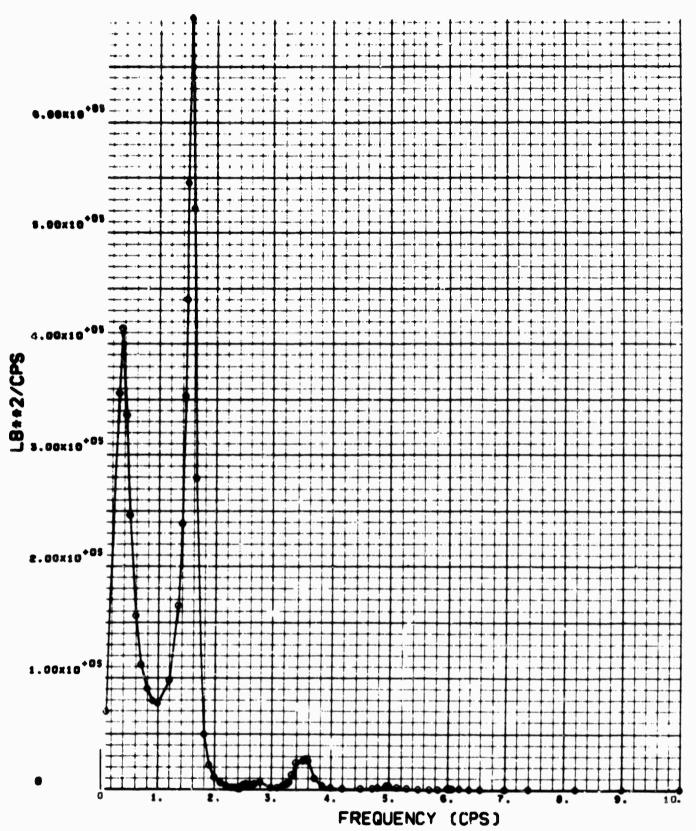
5.00×10⁺⁰⁵ S 4.00×10⁺⁰⁵ 3.00×10^{+0\$} 2.00x10⁺⁰⁵ 1.00×10*05 FREQUENCY (CPS)

WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT

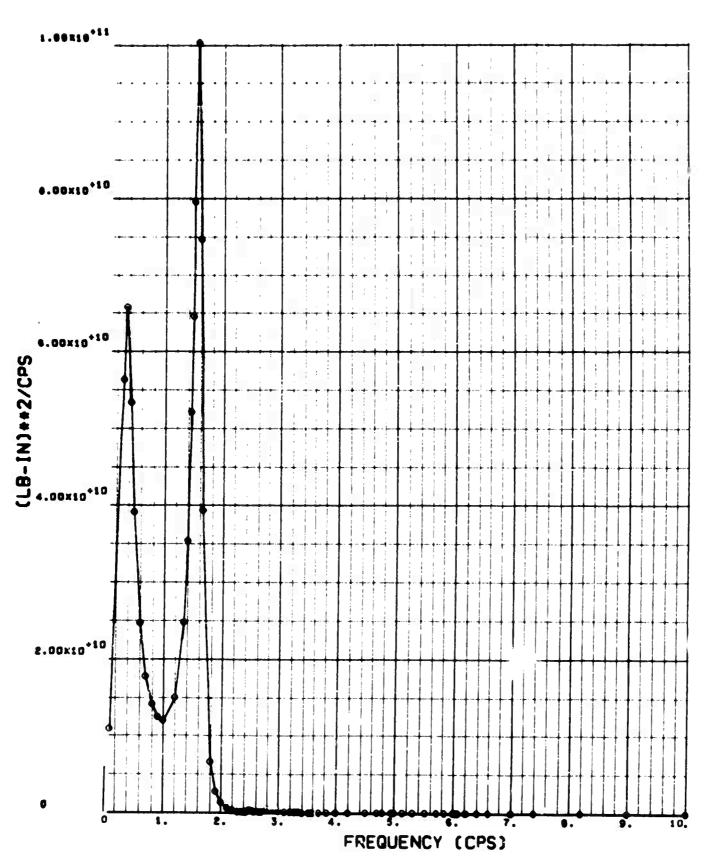


WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT



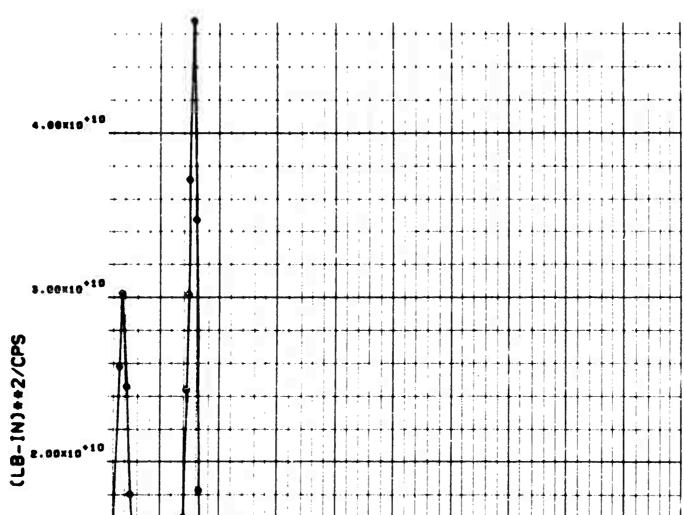
WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

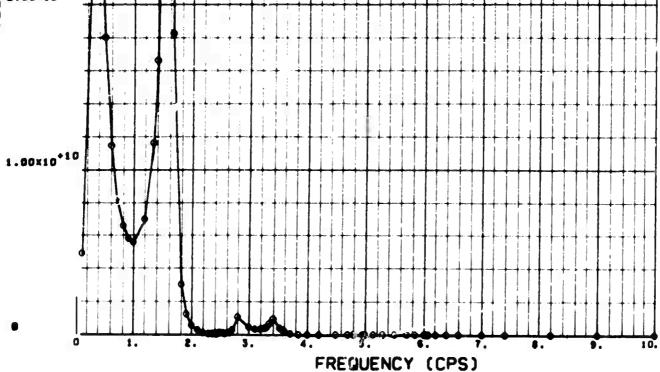
ANALYSIS CONDITION 1 WEIGHT CONDITION A

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

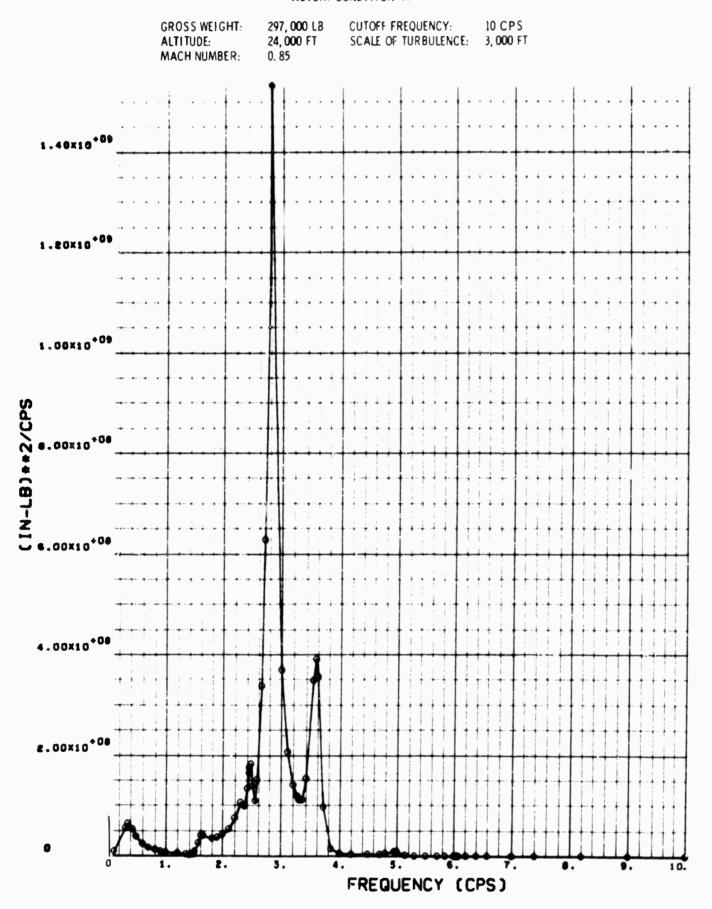
297, 000 LB 24, 000 FT 0, 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT





WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

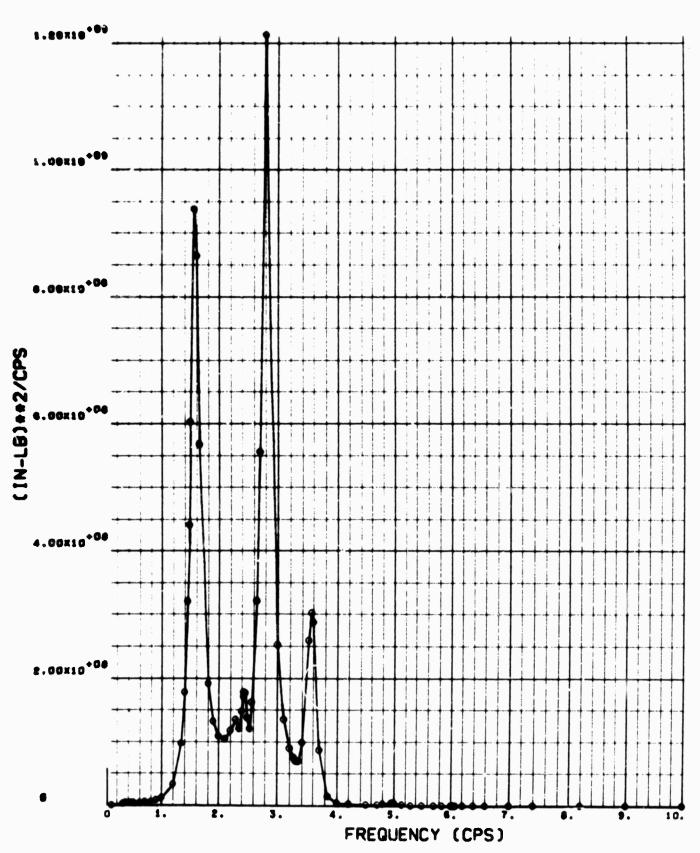


WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT



WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

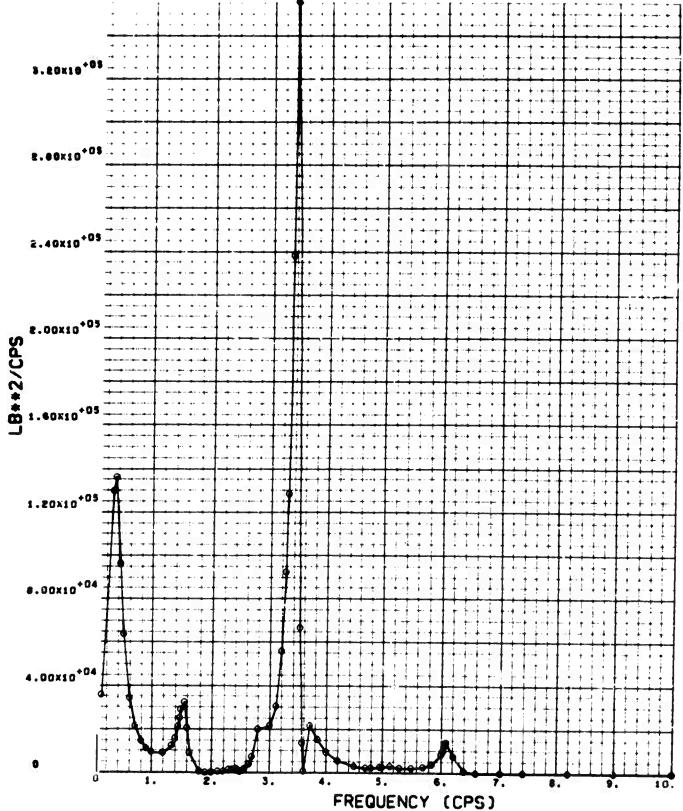
GROSS WEIGHT: ALTITUDE:

297, 000 LB 24,000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

MACH NUMBER: G. 85



BODY SHEAR SPECTRUM, BODY BALANCE STATION: 540

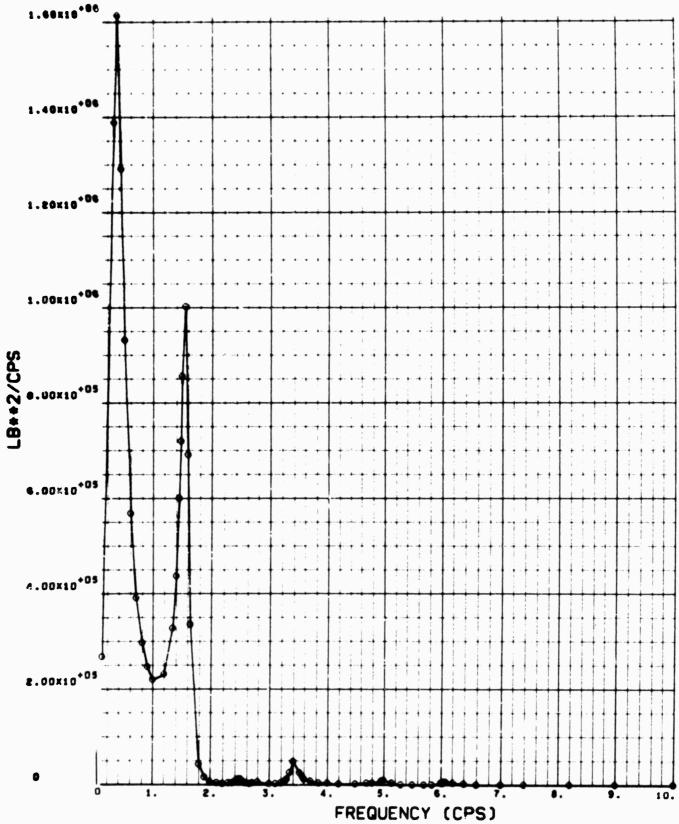
GROSS WEIGHT: ALTITUDE:

297, 000 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

MACH NUMBER: 0.85



BODY SHEAR SPECTRUM, BODY BALANCE STATION: 820

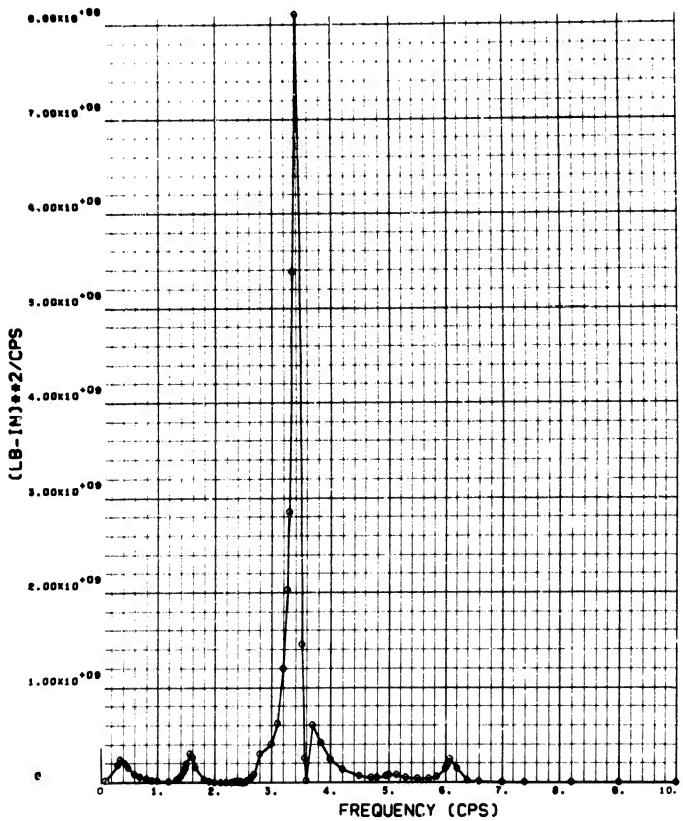
GROSS WEIGHT:

297, 000 LB CUTOFF FREQUENCY: SCALE OF TURBULENCE:

10 CPS 3, 000 FT

ALTITUDE: MACH NUMBER: 24, 000 FT 0. 85

MACH NUMBER: 0, 85



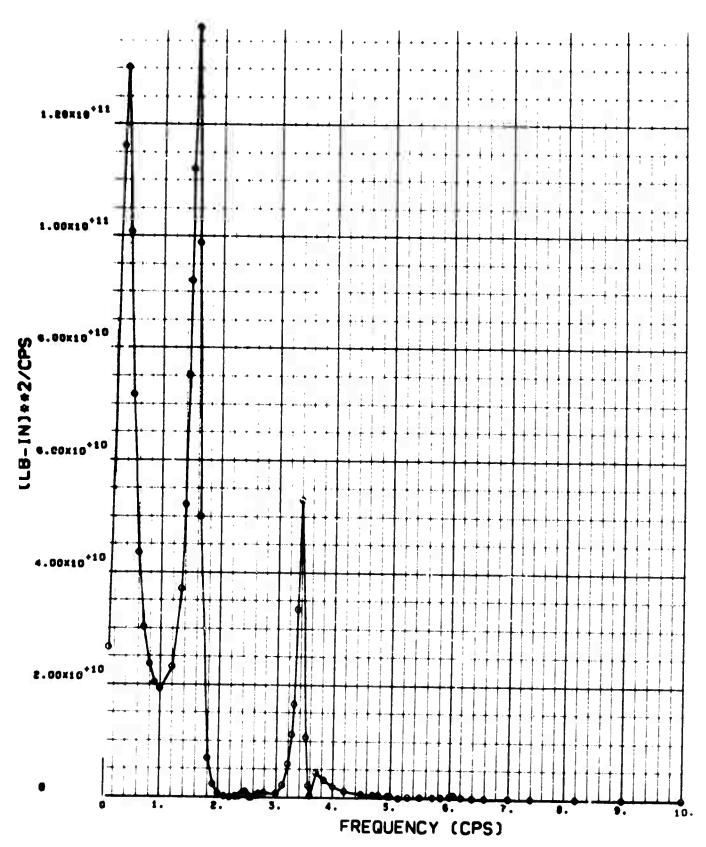
BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS



BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

10 CPS

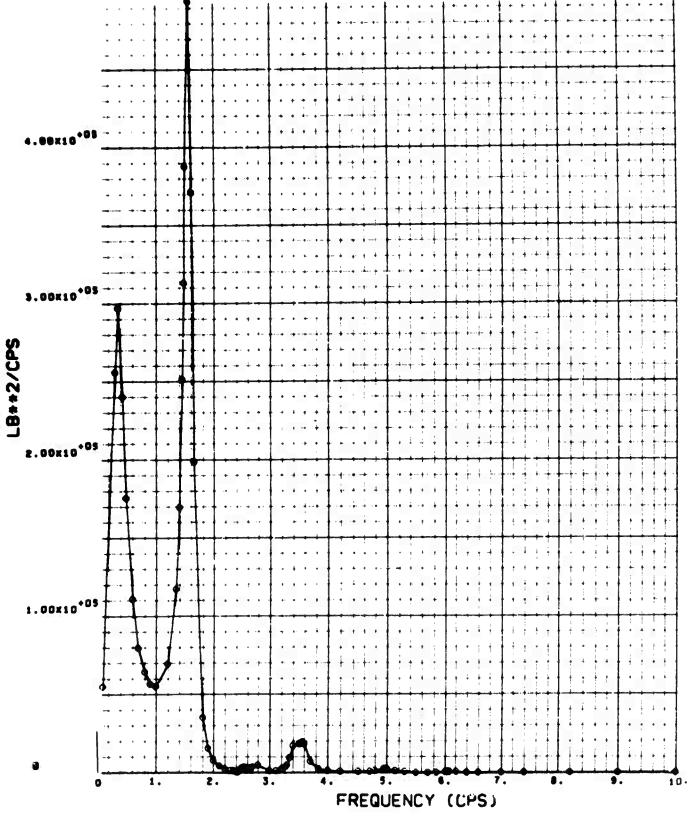
0.85

3.00x10⁺⁰⁵ L8**2/CPS 2.00x10⁺⁰⁵ 1.00x10⁺⁰⁵ FREQUENCY (CPS)

WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

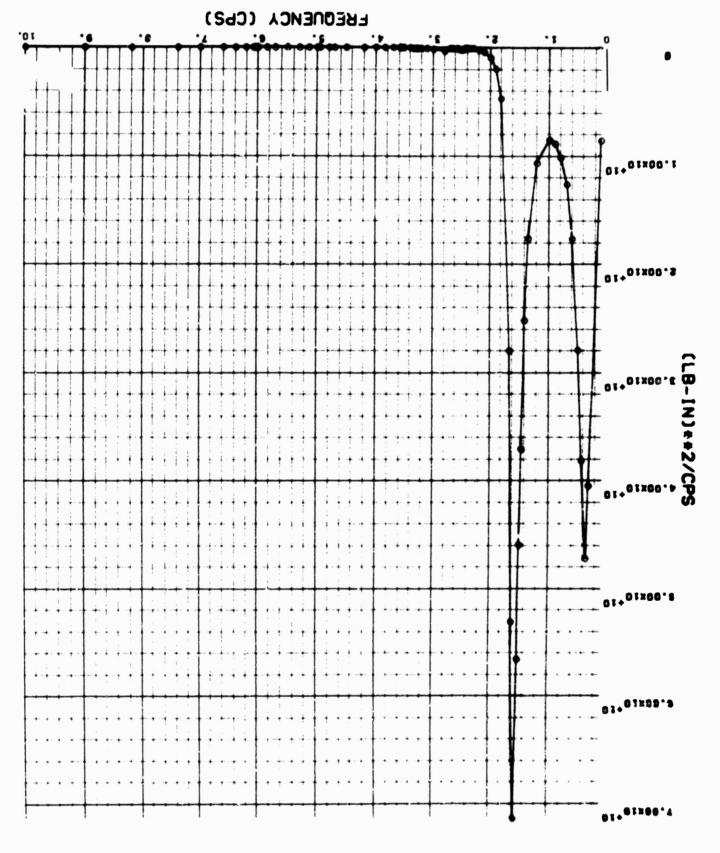
GROSS WEIGHT: -297,000 LB CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT SCALE OF TURBULENCE: 5,000 FT

MACH NUMBER: 0.85



WING BENDING MOMENT SPECTRUM, 40, 06 PERCENT SEMISPAN

MING BENDING WOWENT SPECTION, 27 PERCENT SEMISPAPP

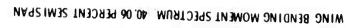


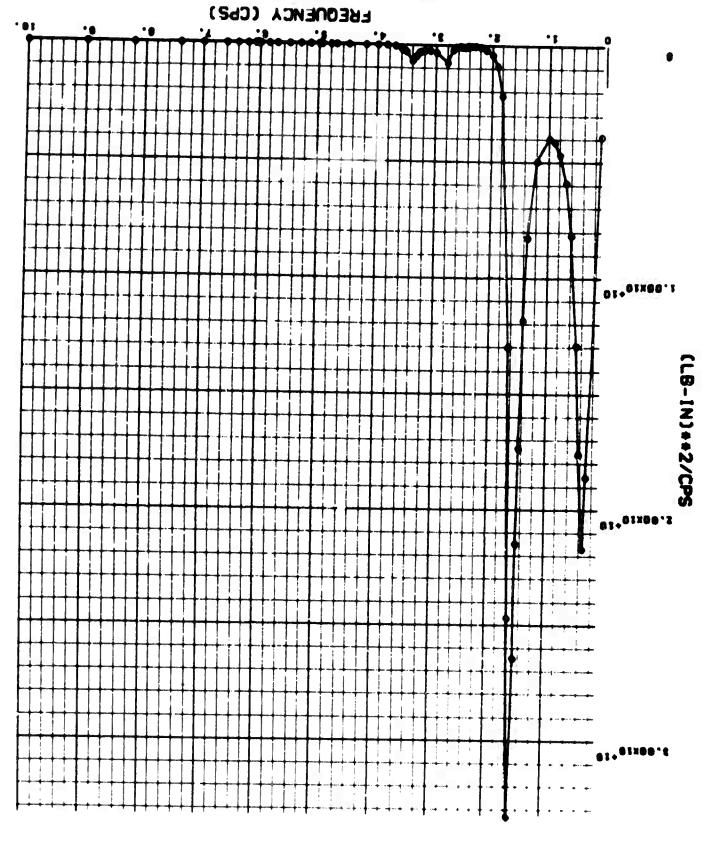
ALTITUDE: **CROSS WEIGHT:**

28.0 24, 000 FT 297, 000 LB

SCALE OF TURBULENCE: 5,000 FT CUTOFF FREQUENCY:

JO CPS





WACH NUMBER:

THE THE PROPERTY OF THE PROPER

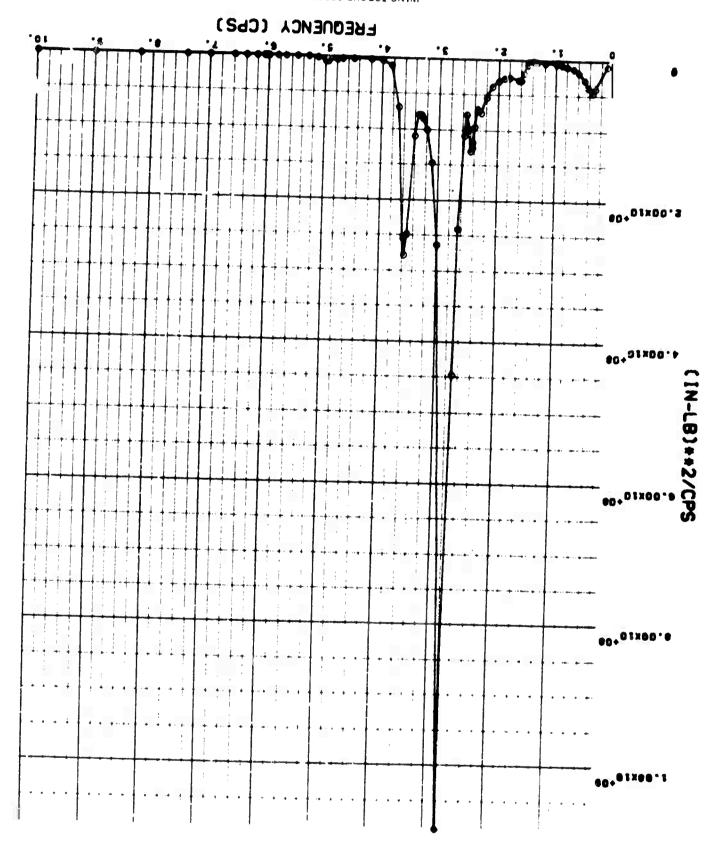
28.0

24, 000 FT

SCALE OF TURBULENCE. 5,000 FT

CROSS WEIGHT: 297,000 LB CUTOFF FREQUENCY: 10 CPS

WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN



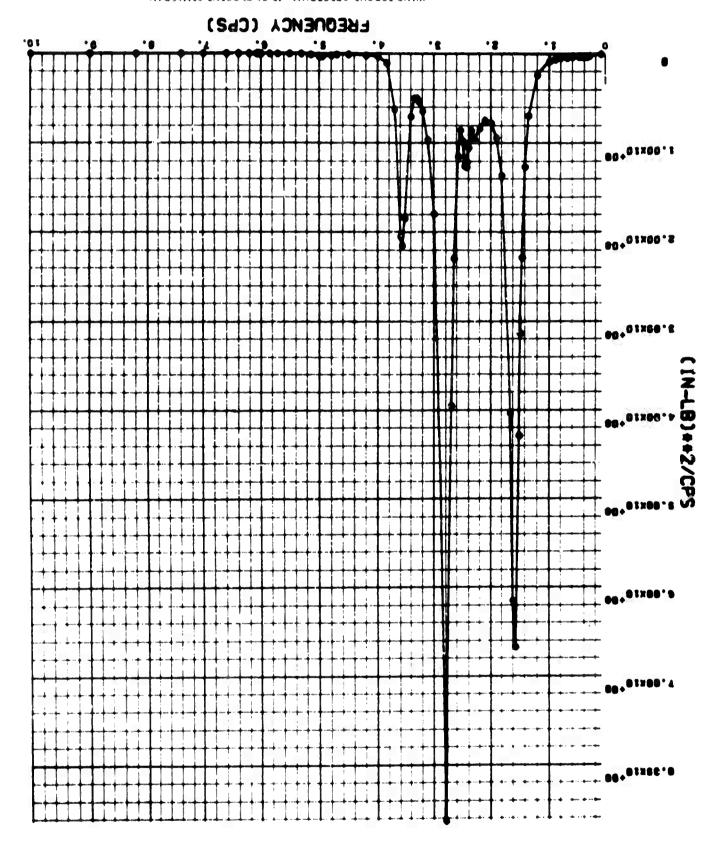
IO Cb2

SCALE OF TURBULENCE: 5, 000 FT CUTOFF FREQUENCY:

28 O 24,000 FT 297, 000 LB

MACH NUMBER. ALTITUDE: **CROSS WEIGHT:**

WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

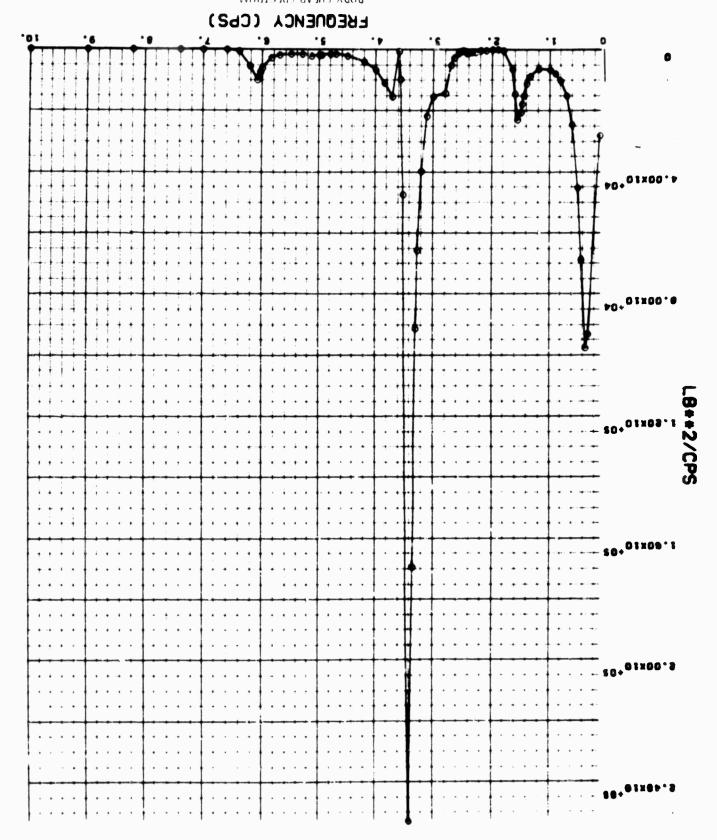


WACH NUMBER: CROSS WEIGHT:

SCALE OF TURBULENCE: 5,000 FT 10 CPS CUTOFF FREQUENCY:

28.0 24, 000 FT 297, 000 LB

BODY SHER SPECTRUM, 540



MACH NUMBER: -30UTITJA GROSS WEIGHT:

68.0 24, 000 FT 2CALE OF TURBULENCE: 5,000 FT 297,000 LB CUTOFF FREQUENCY:

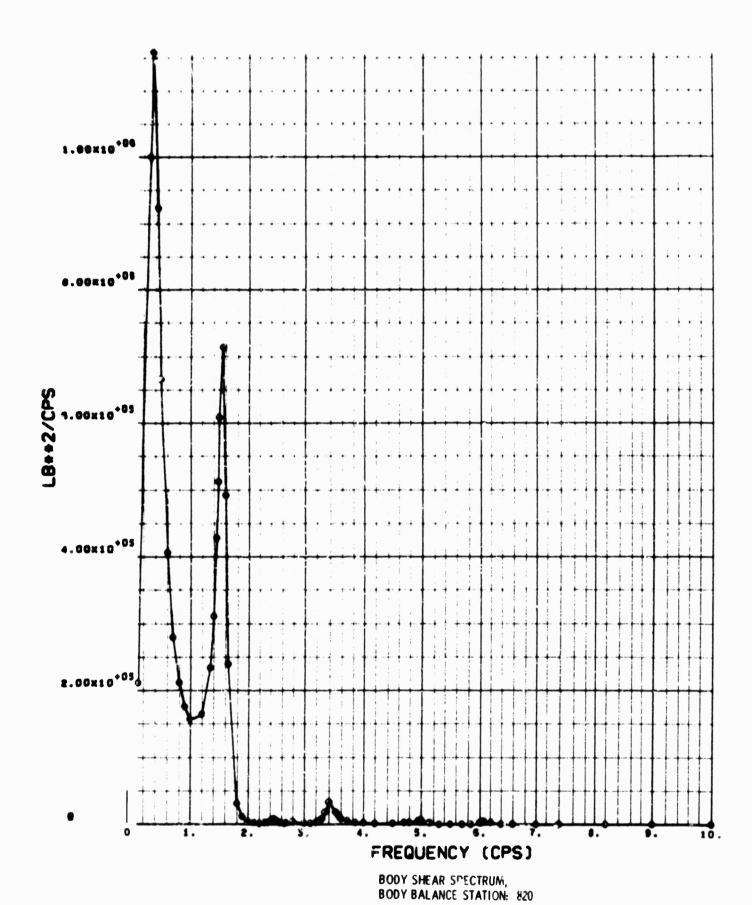
10 Cb2

GROSS WEIGHT: ALTITUDE: MAC'I NUMBER:

297, 000 L8 24, 000 FT 0.85

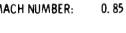
CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

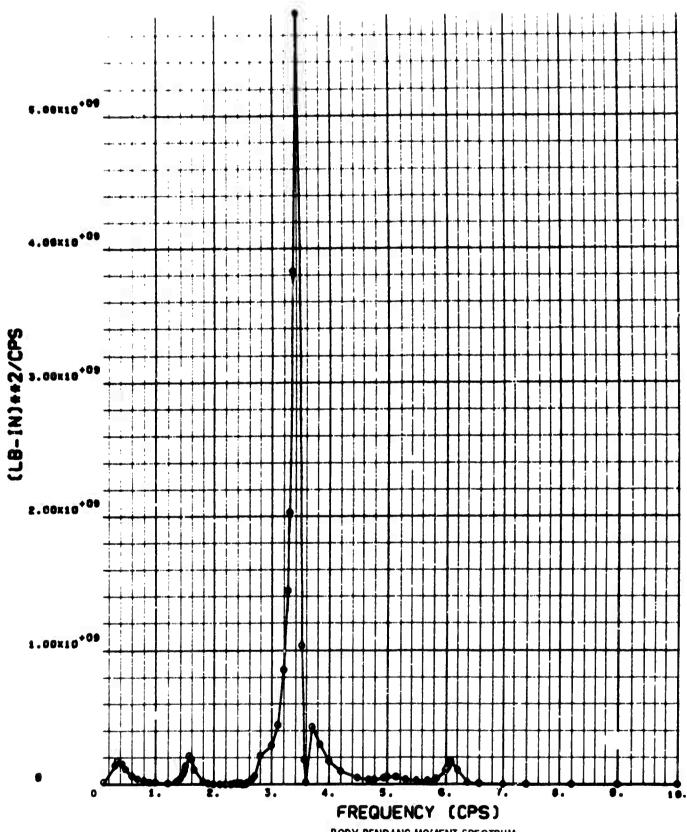
10 CPS



GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT





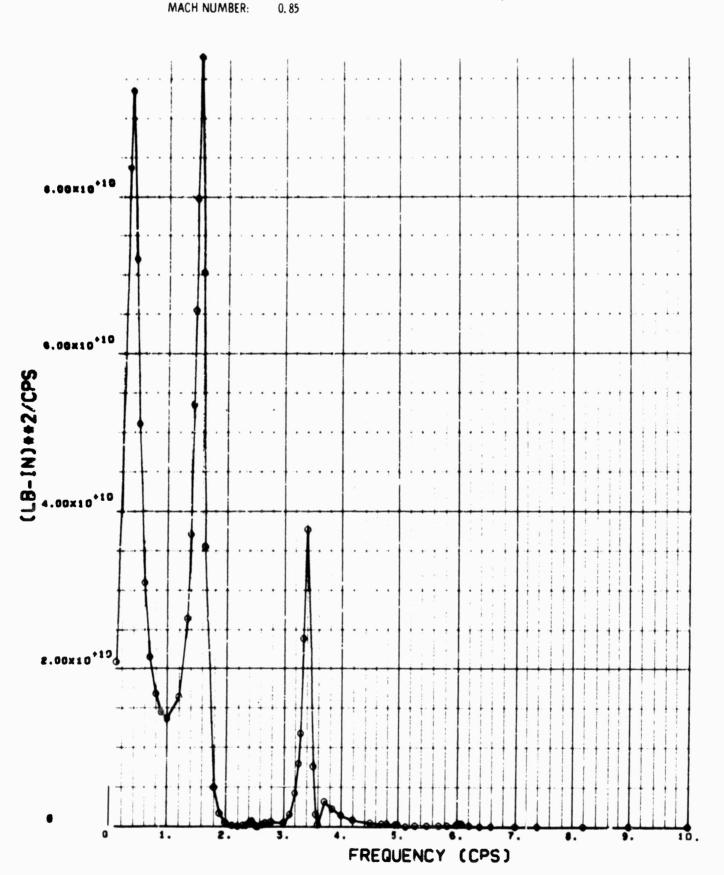
BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24,000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

10 CPS

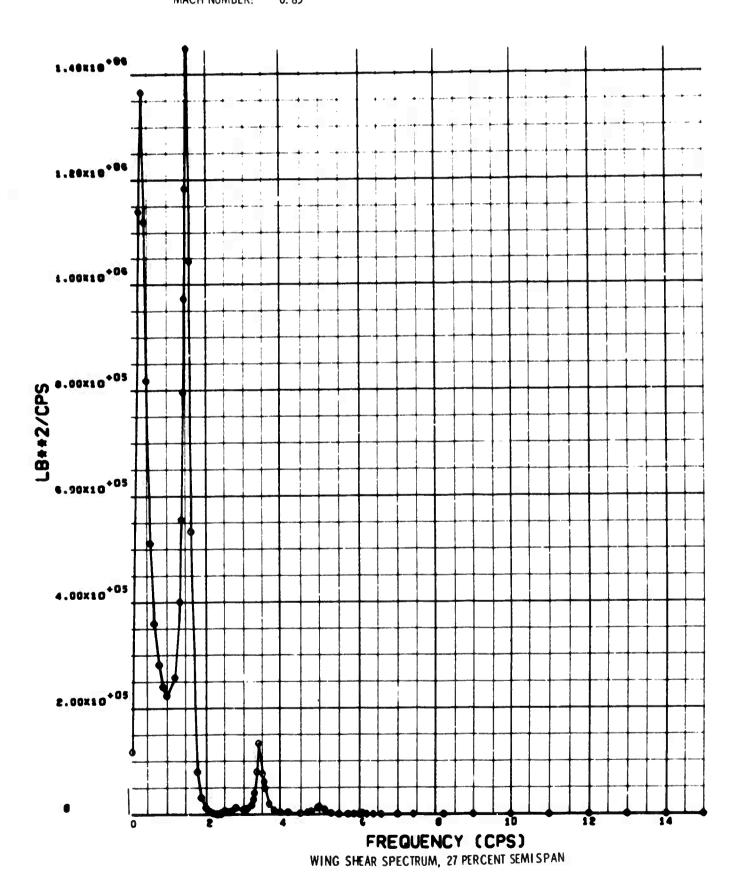


BODY BENDING MOMENT SPECTRUM, **BODY BALANCE STATION: 820**

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

15 CPS

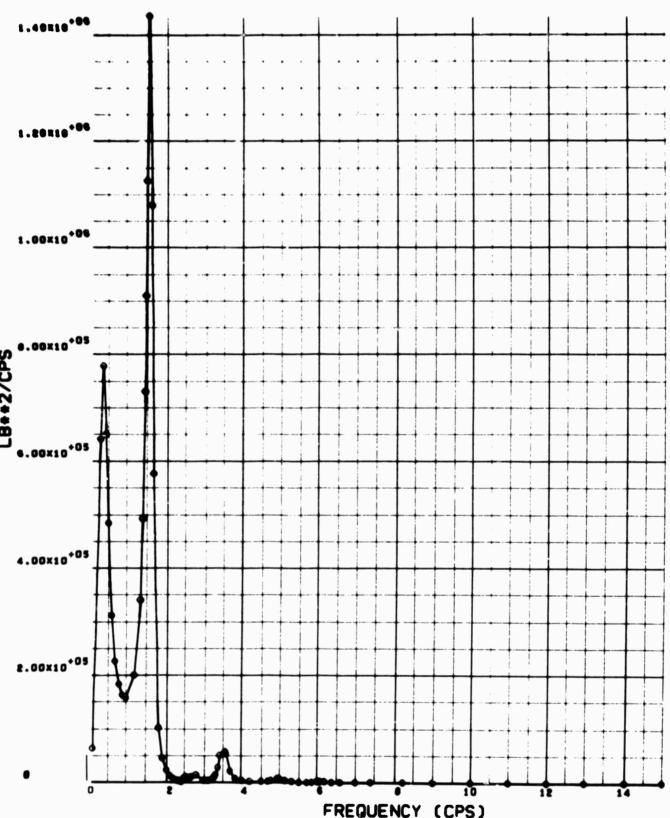


103

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 15 CPS SCALE OF TURBULENCE: 1,000 FT

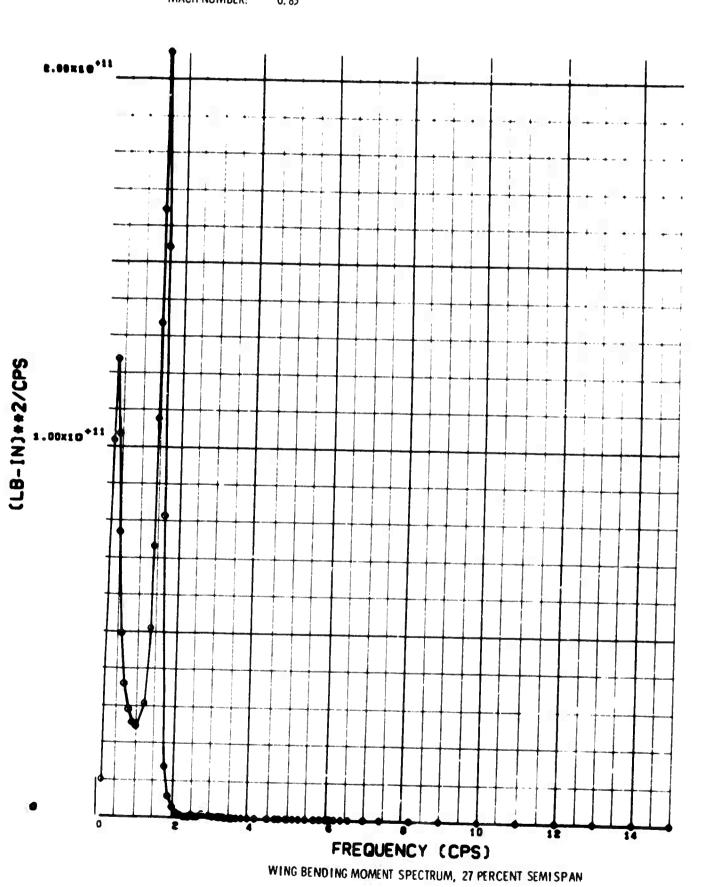


WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

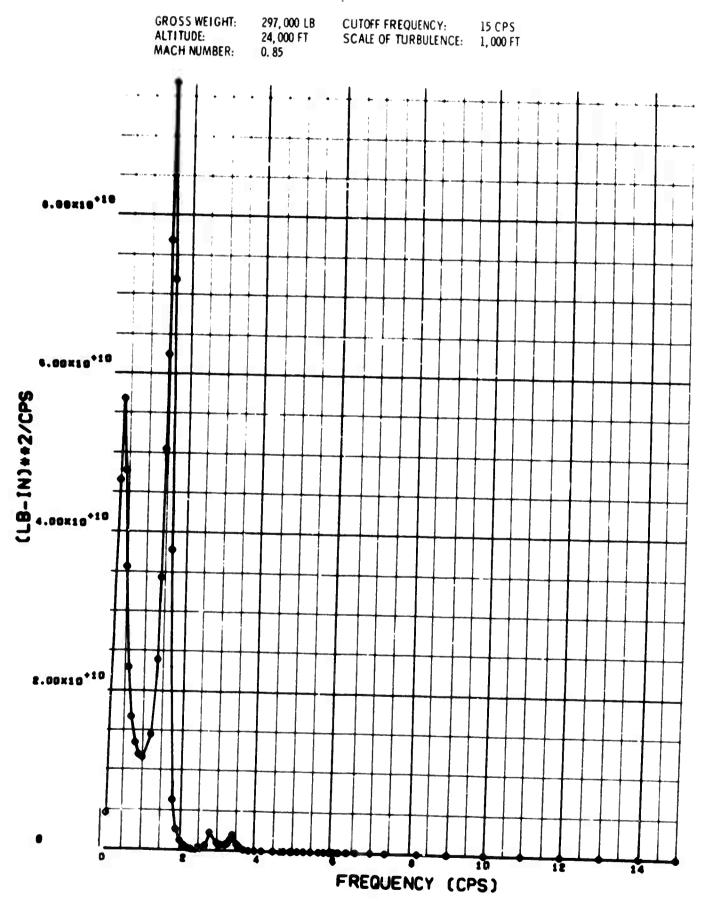
GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297,000 LB 24,000 FT 0.85

CUTOFF FREQUENCY: 15 CPS SCALE OF TURBULENCE: 1,000 FT



105

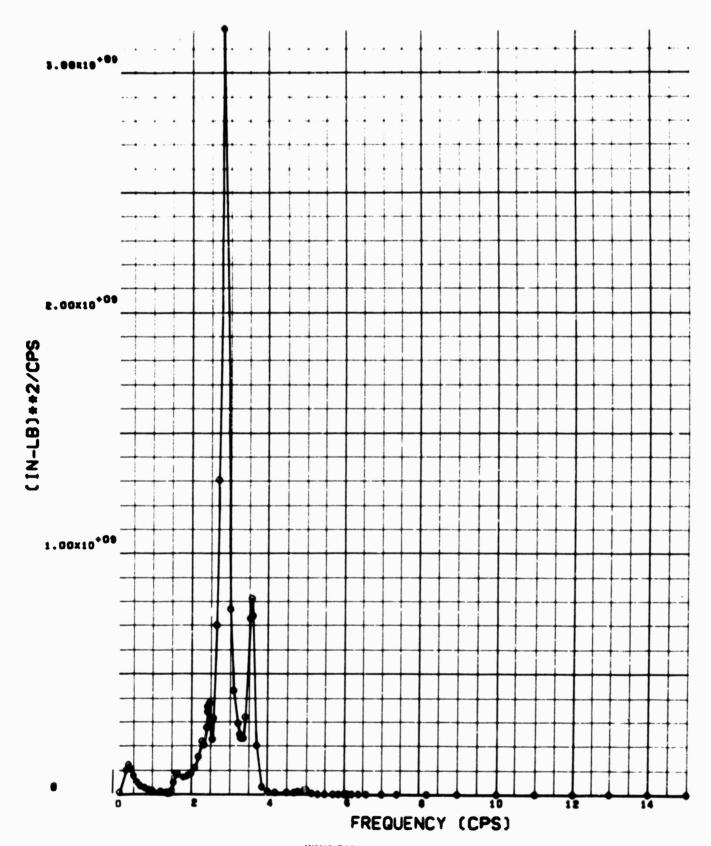


WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297,000 LB 24,000 FT 0.85

CUTOFF FREQUENCY: 15 CPS SCALE OF TURBULENCE: 1,000 FT



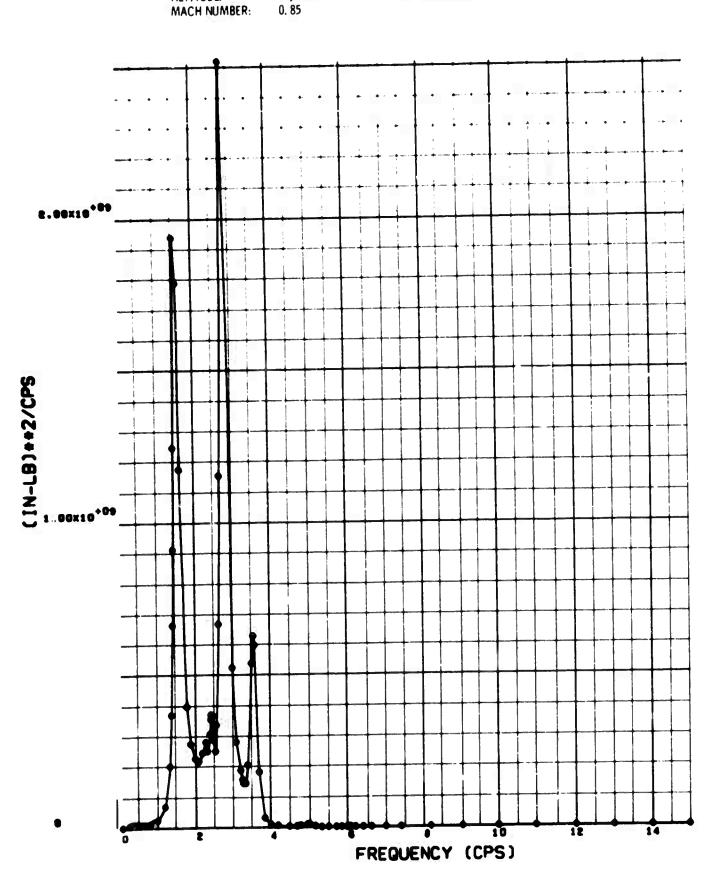
WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

15 CPS

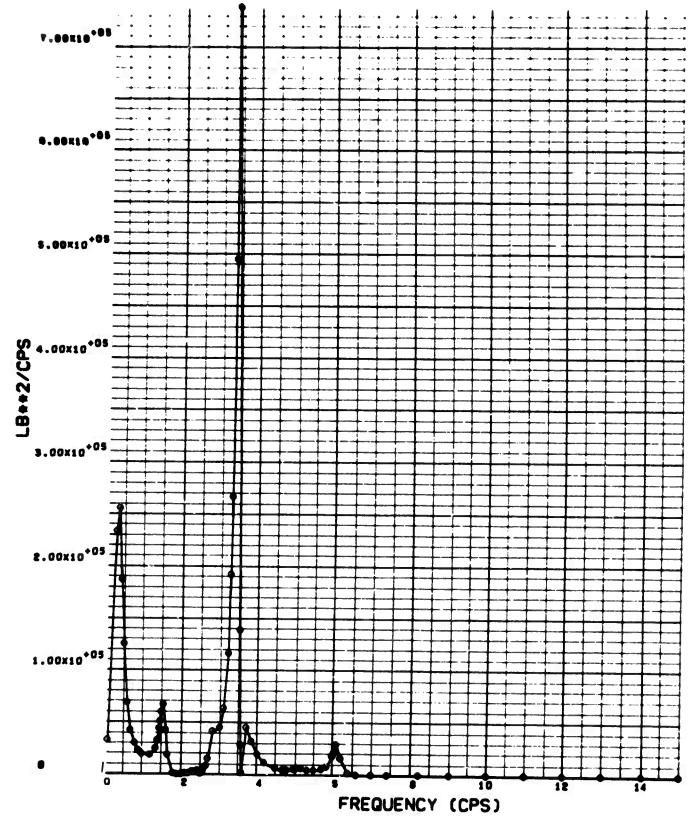


WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT

CUTOFF FREQUENCY: 15 CPS SCALE OF TURBULENCE: 1,000 FT

0.85



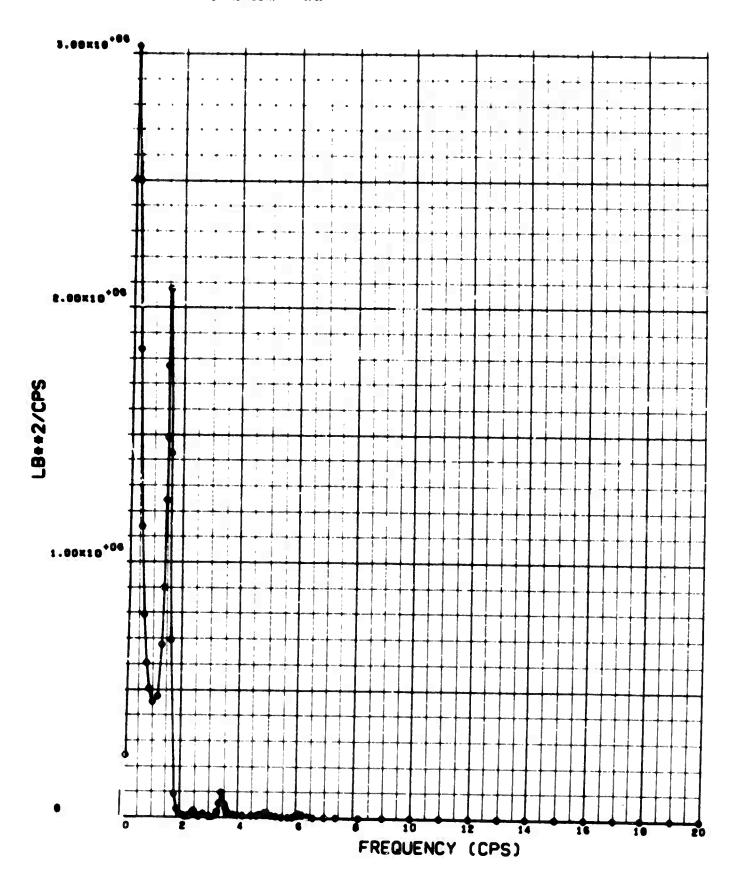
BODY SHEAR SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: 297, 000 LB 24, 000 FT ALTITUDE:

MACH NUMBER:

0.85

CUTOFF FREQUENCY: 15 CPS SCALE OF TURBULENCE: 1,000 FT



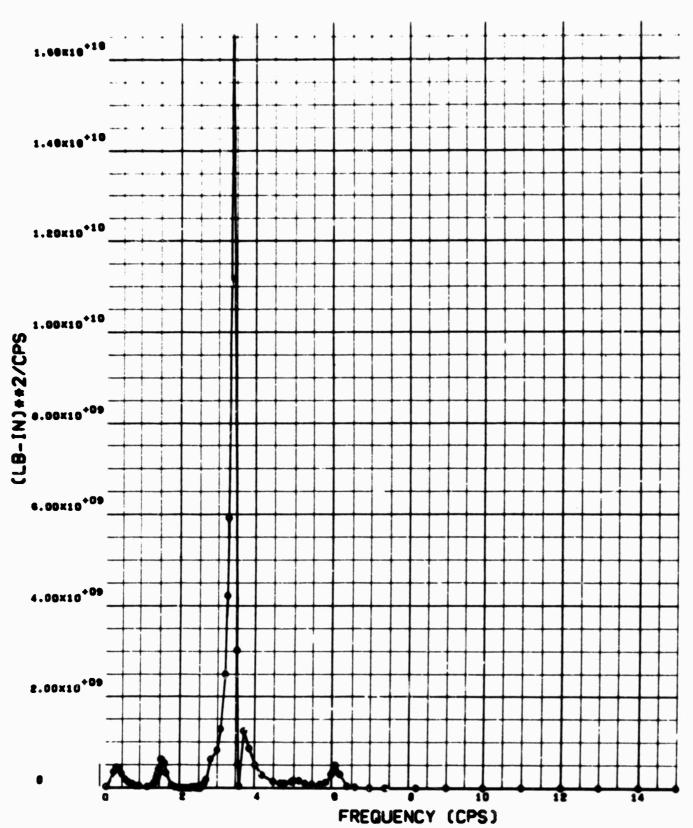
BODY SHEAR SPECTRUM. BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297,000 LB 24, 000 FT

CUTOFF FREQUENCY:-SCALE OF TURBULENCE: 1,000 FT

15 CPS

0.85



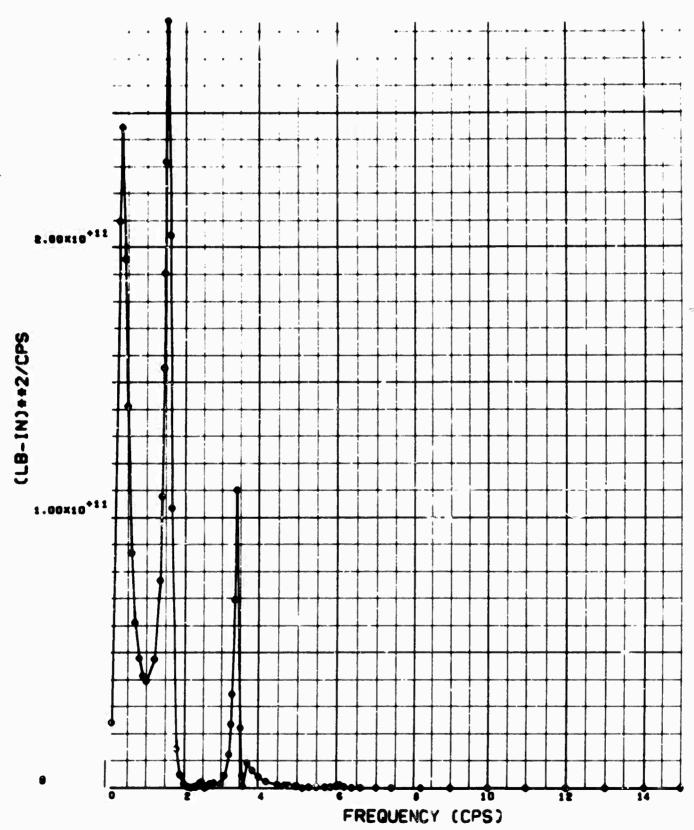
BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 600 LB 24,000 FT 0.85

CUTGFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

15 CPS



BODY BENUING MOMENT SPECTRUM,
BODY BALANCE STATION: 820

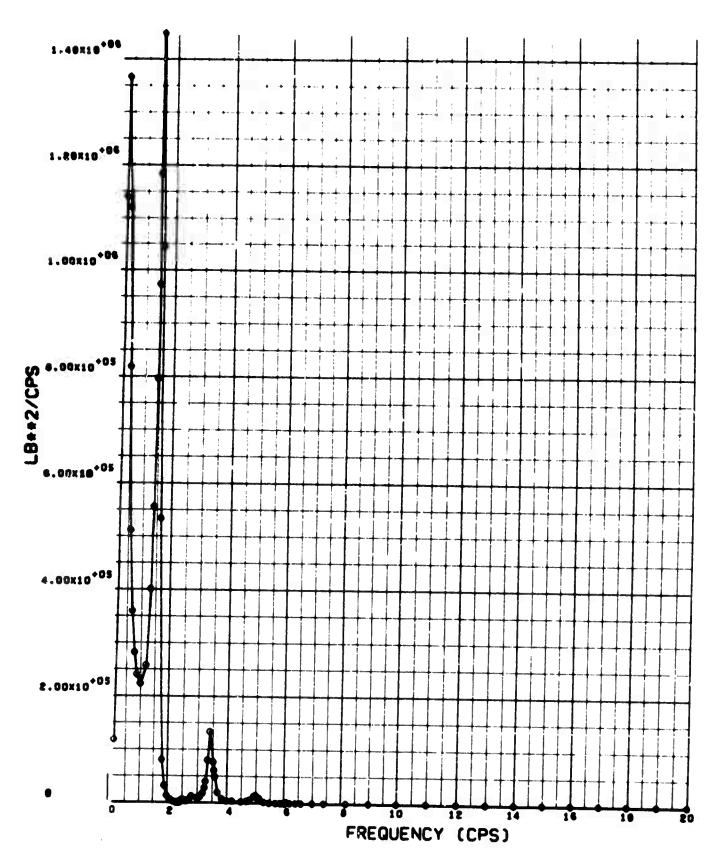
PROPERTY OF THE PROPERTY OF TH

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

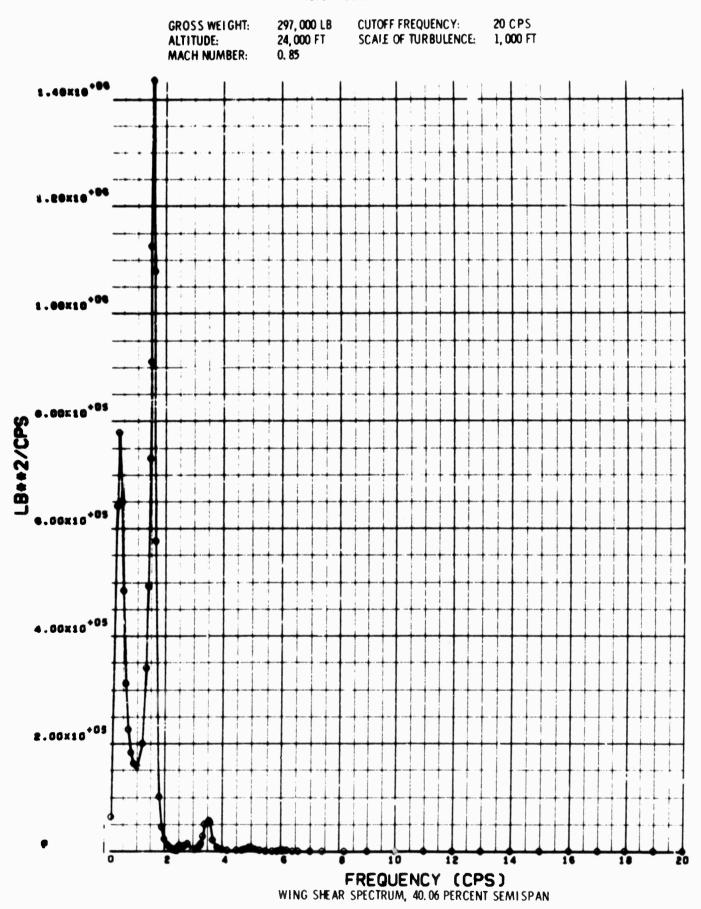
297, 000 LB 24, 000 FT 0. 35

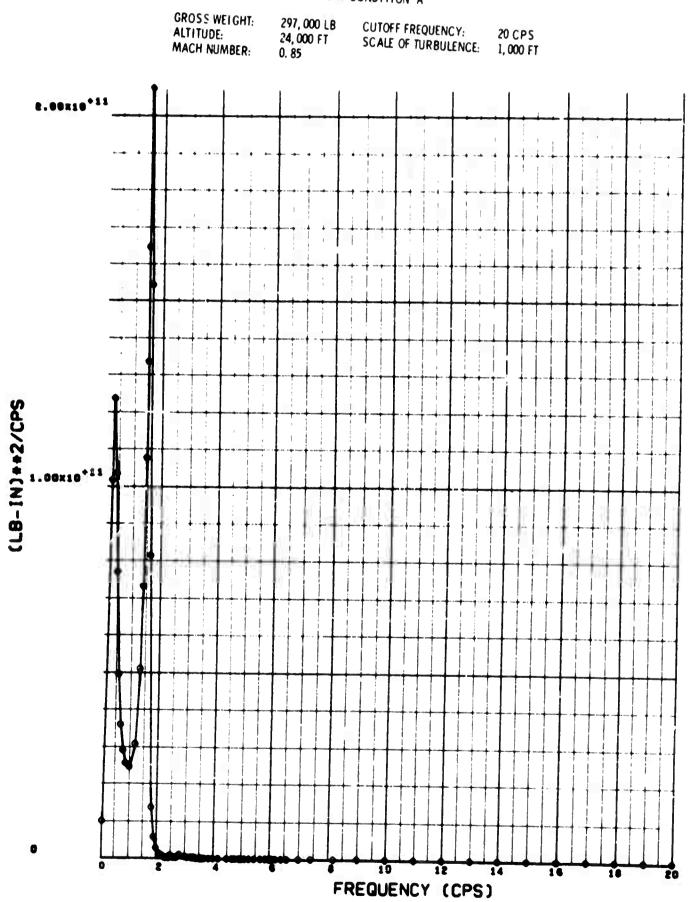
CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

20 CPS

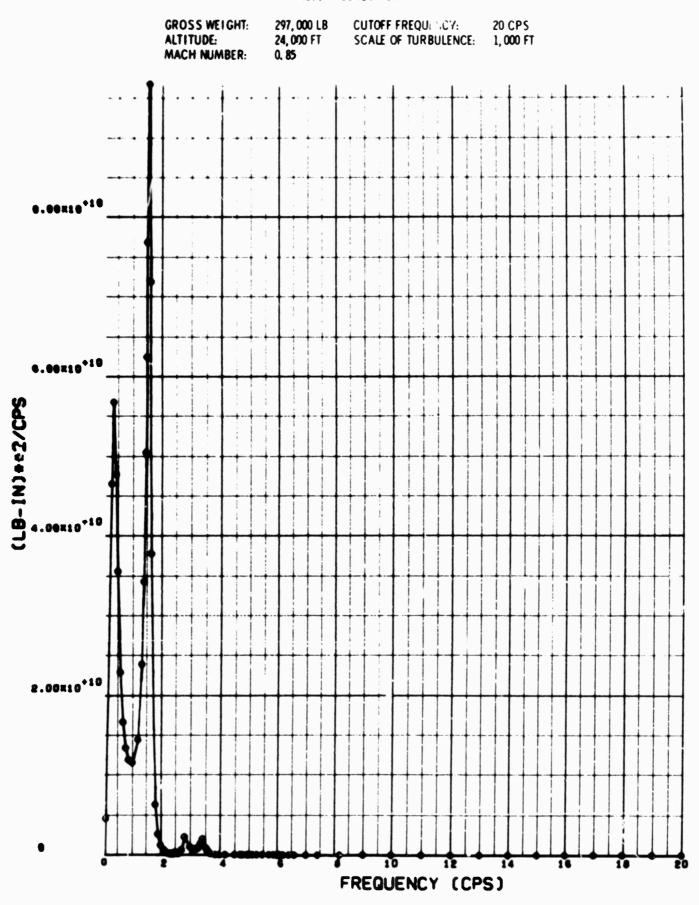


WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN





WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN



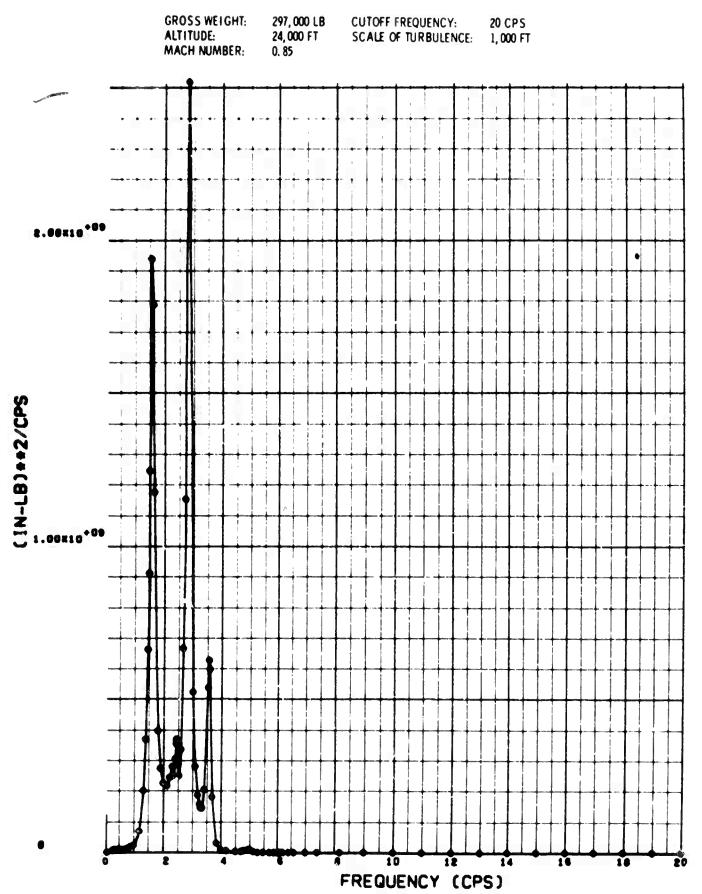
WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

CUTOFF FREQUENCY: 20 CPS SCALE OF TURBULENCE: 1,000 FT 297, 000 LB 24, 000 FT

(IN-LB)**2/CPS 1.00/10+09

> FREQUENCY (CPS) WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN



WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE:

297, 000 LB 24,000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

20 CPS

MACH NUMBER: 0.85

LB++2/CPS 3.00x10⁺⁰⁸ 2.00x10*05 1.00×10⁺⁰⁵

BODY BALANCE STATION: 540

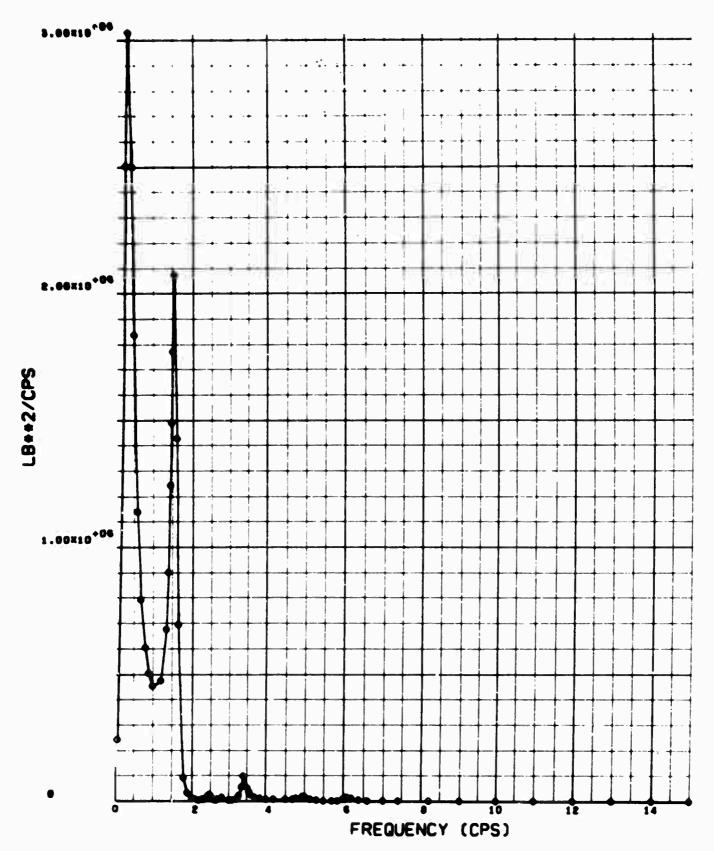
FREQUENCY (CPS)

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

20 CPS



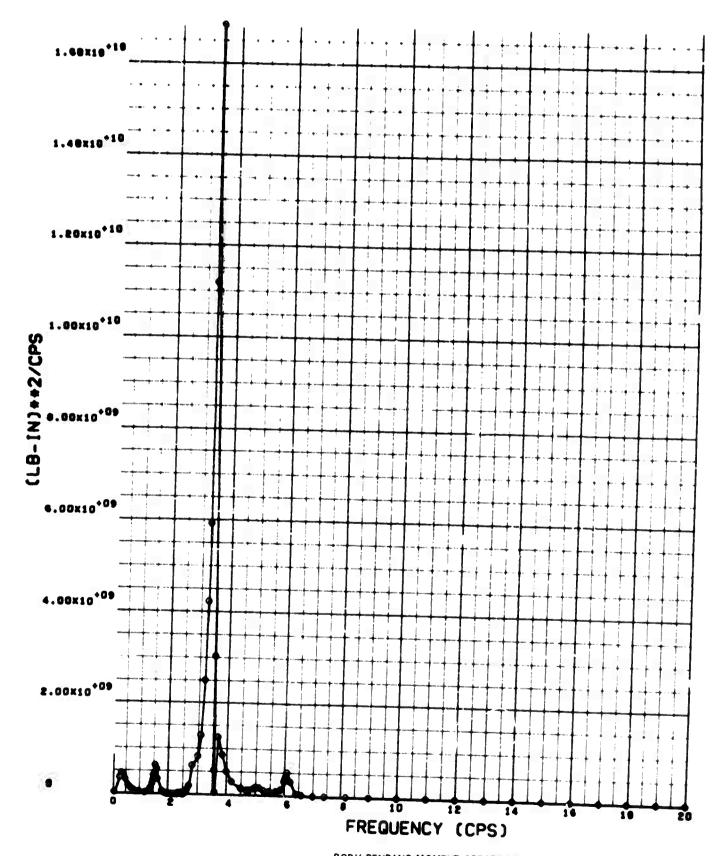
BODY SHEAR SPECTRUM, **BODY BALANCE STATION: 820**

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297,000 LB 24,000 FT

0.85

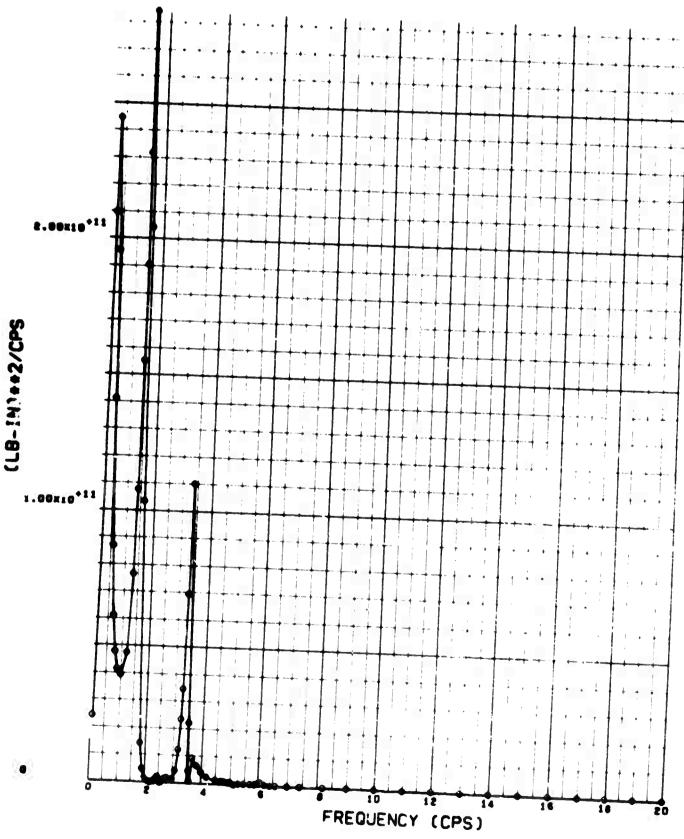
CUTOFF FREQUENCY: 20 CPS SCALE OF TURBULENCE: 1,000 FT



BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: 297, 000 LB 24, 000 FT MACH NUMBER:

CUTOFF FREQUENCY: 20 CPS SCALE OF TURBULENCE: 1,000 FT



BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE:

268, 000 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE:

10 CPS 1,000 FT

MACH NUMBER:

0.85

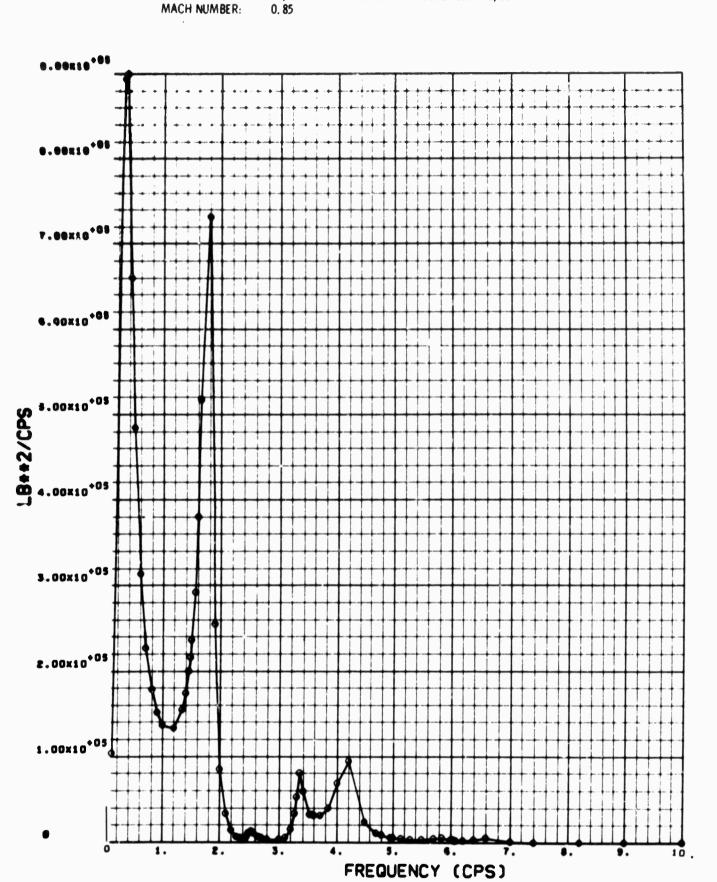
1.20410*04 1.00×10*06 6.00R10⁺⁰⁵ 4.00×10⁺⁰⁵ 2.00x10⁺⁰⁵ FREQUENCY (CPS)

WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE:

268, 000 LB 24, 000 FT

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT



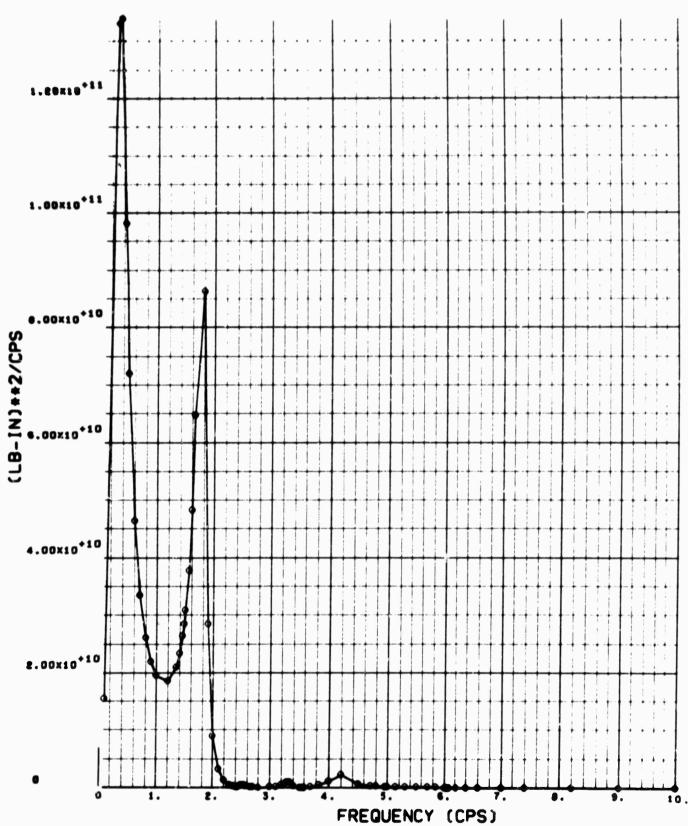
WING SHEAR SEECTRUM, 40.06 PERCENT SEMISPAN

ANALYSIS CONDITION 2
WEIGHT CONDITION B

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 268, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE:

10 CPS 1, **000** FT



WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 268, 000 LB CUTOFF FRI 24, 000 FT SCALE OF 1 0, 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

4.00×10⁺¹⁰ (LB-1N) **2/CPS 2.00×10⁺¹⁰ 1.00x10⁺¹⁰ FREQUENCY (CPS)

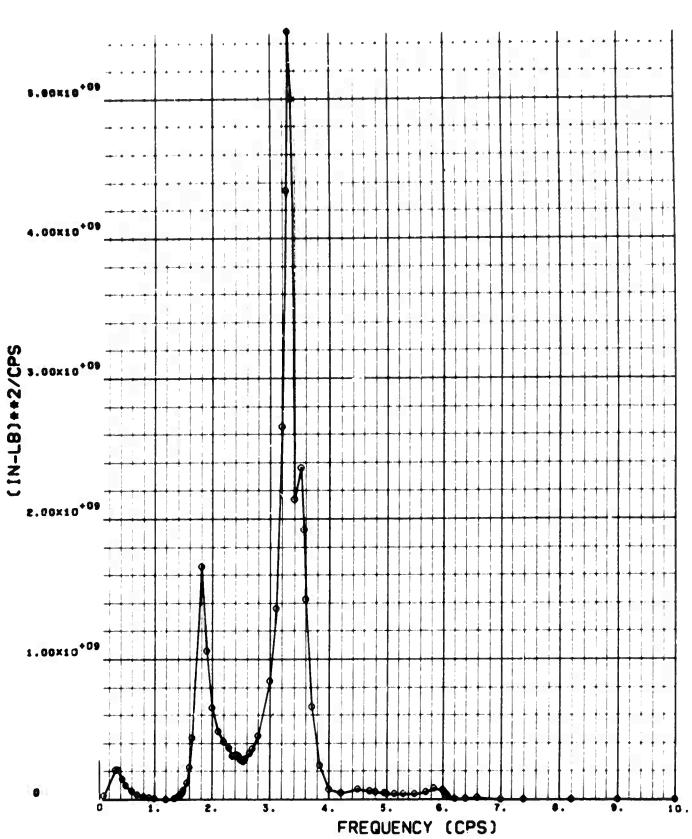
WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268,000 LB 24,000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

10 CPS

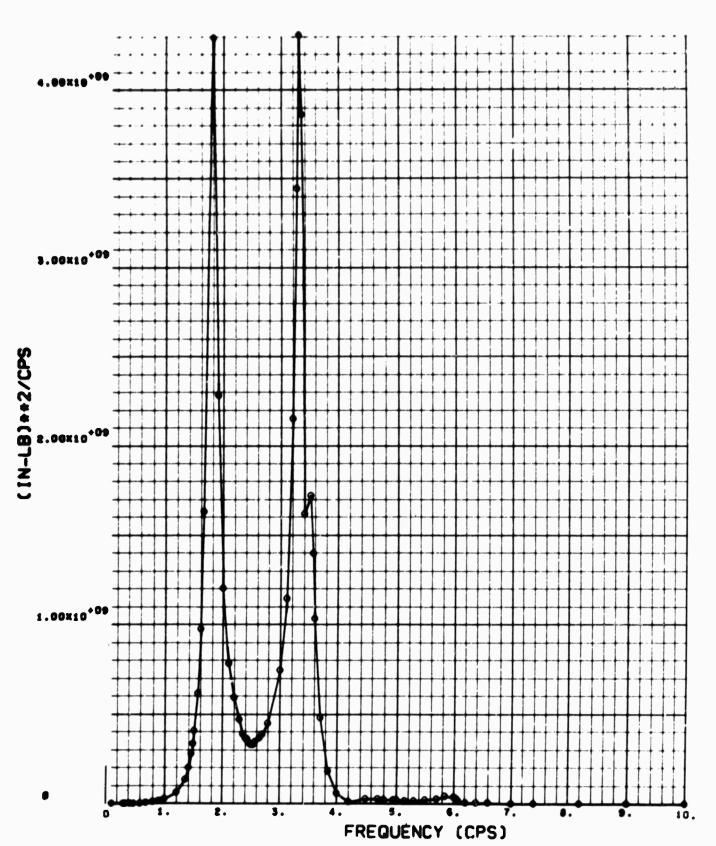


WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0, 85

CUTOFF FREQUENCY: CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

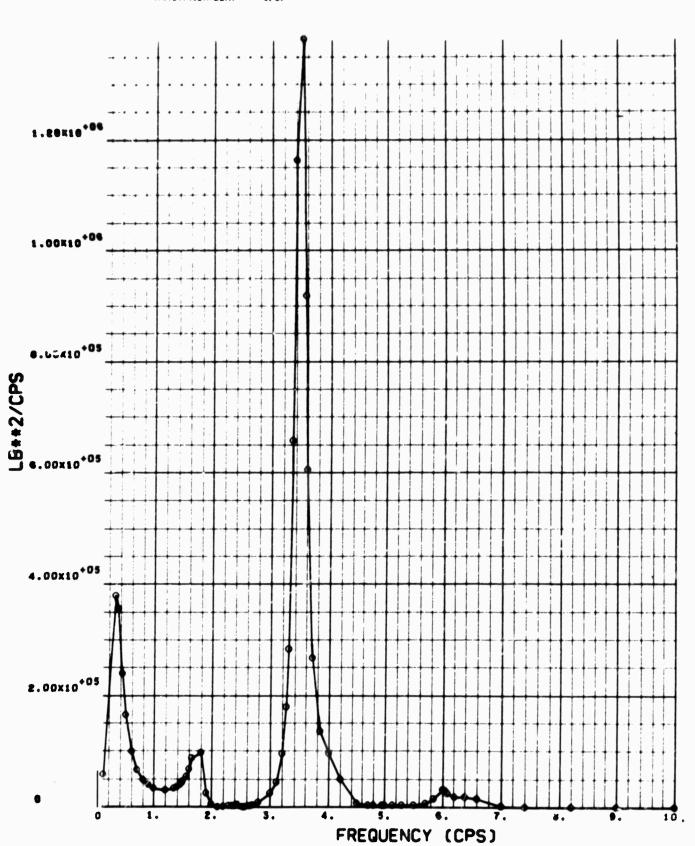


WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0. 85

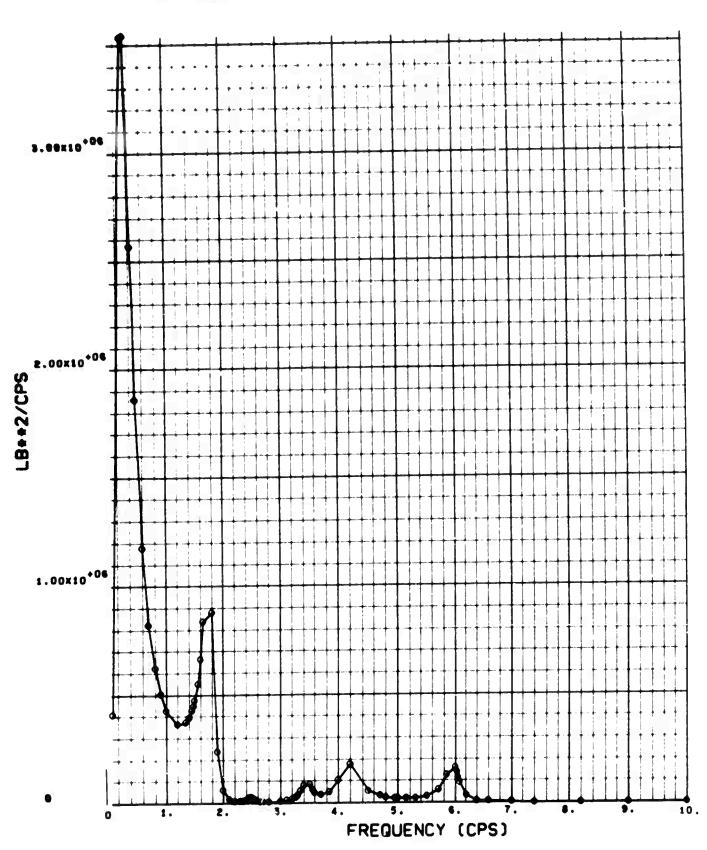
CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT



BODY SHEAR SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT 268, 000 LB 24, 000 FT 0.85

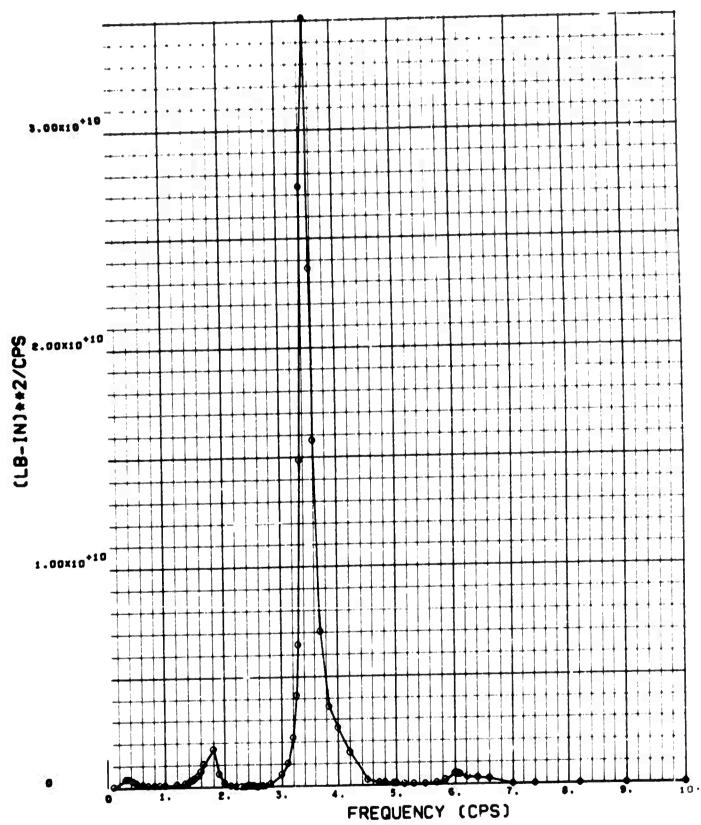


BODY SHEAR SPECTRUM,

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0, 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

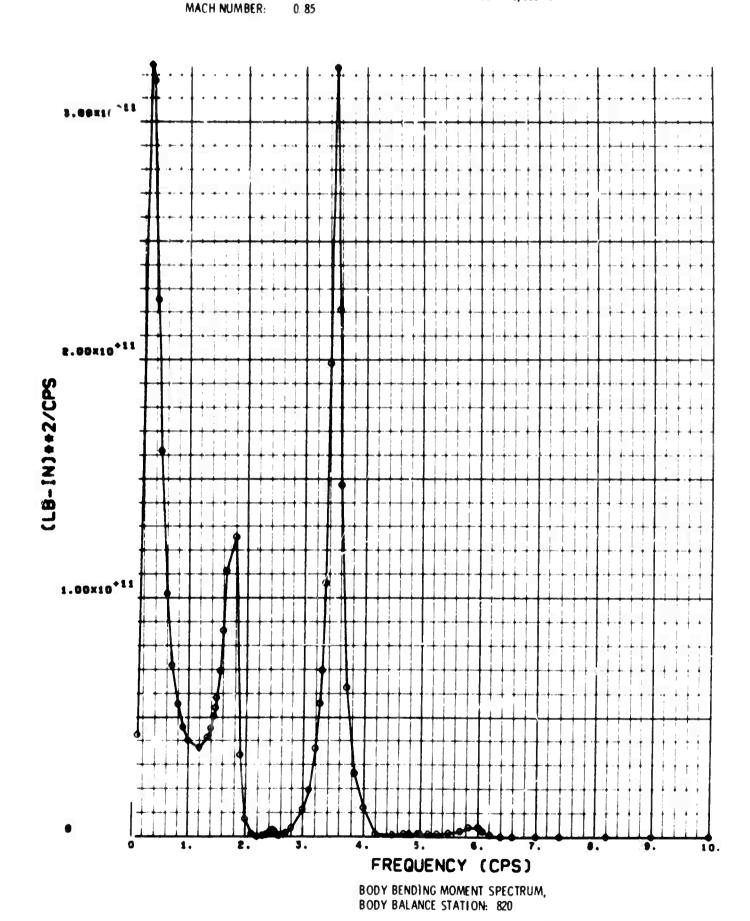


BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT



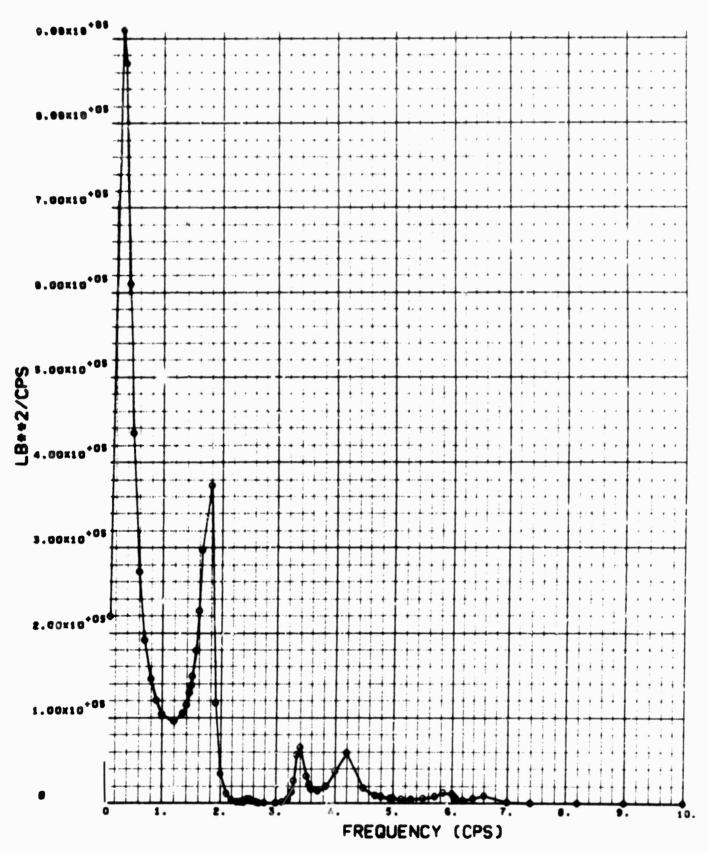
GROSS WEIGHT: ALTITUDE:

MACH NUMBER:

268, 000 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000

10 CPS



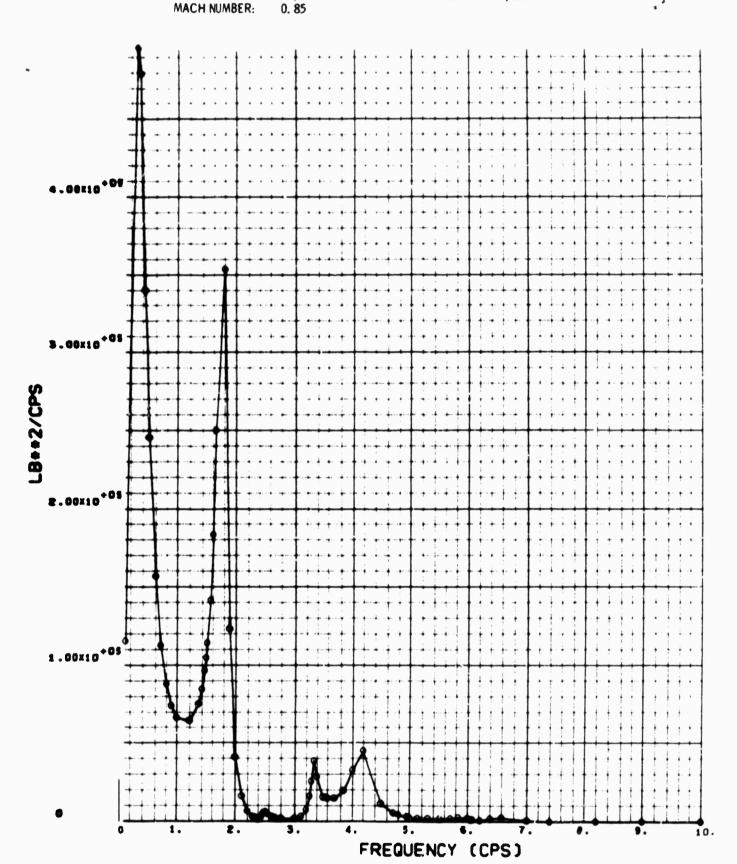
WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: **ALTITUDE**:

268, 000 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000

10 CPS

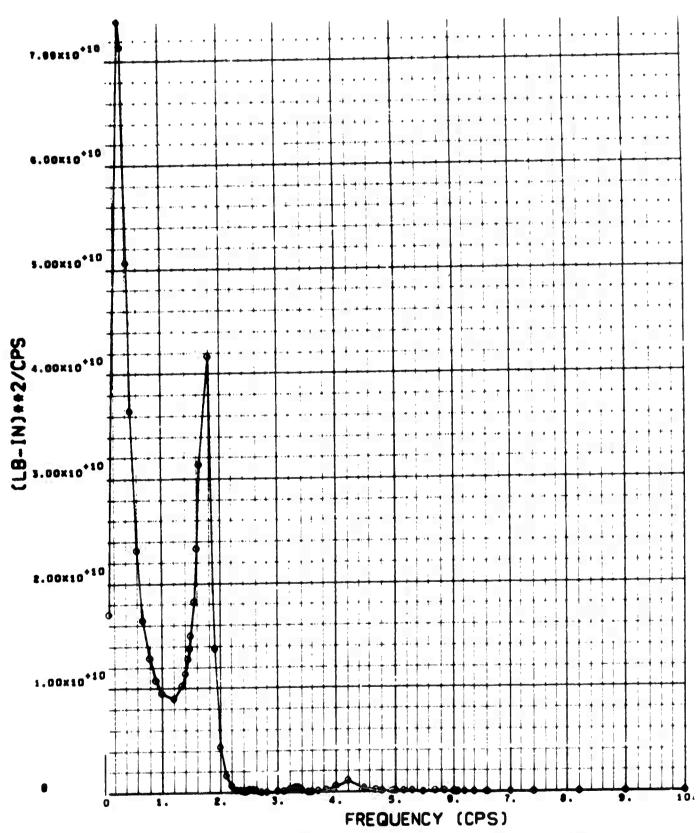


WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 268, 000 LB 24, 000 FT

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3, 000

10 CPS



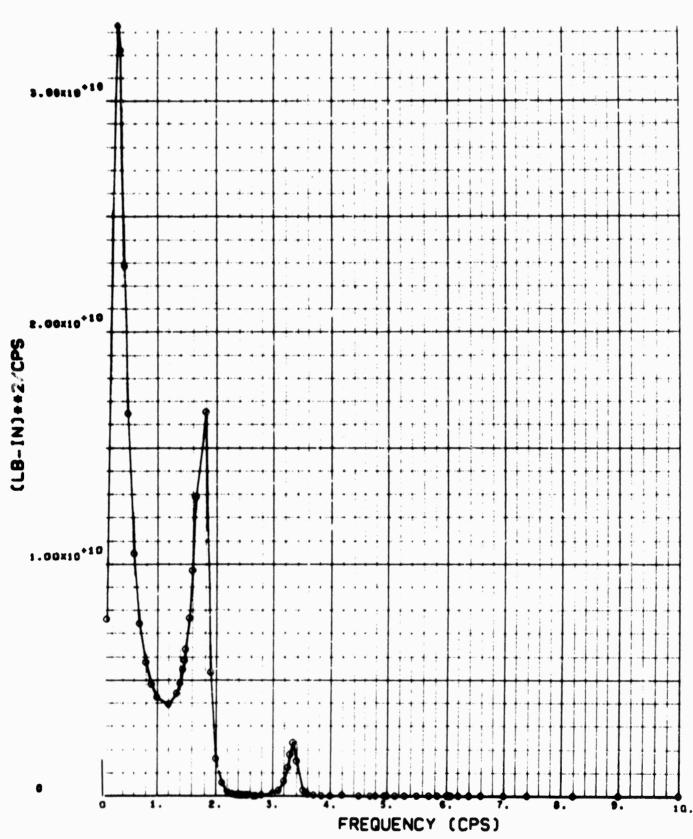
WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000

10 CPS

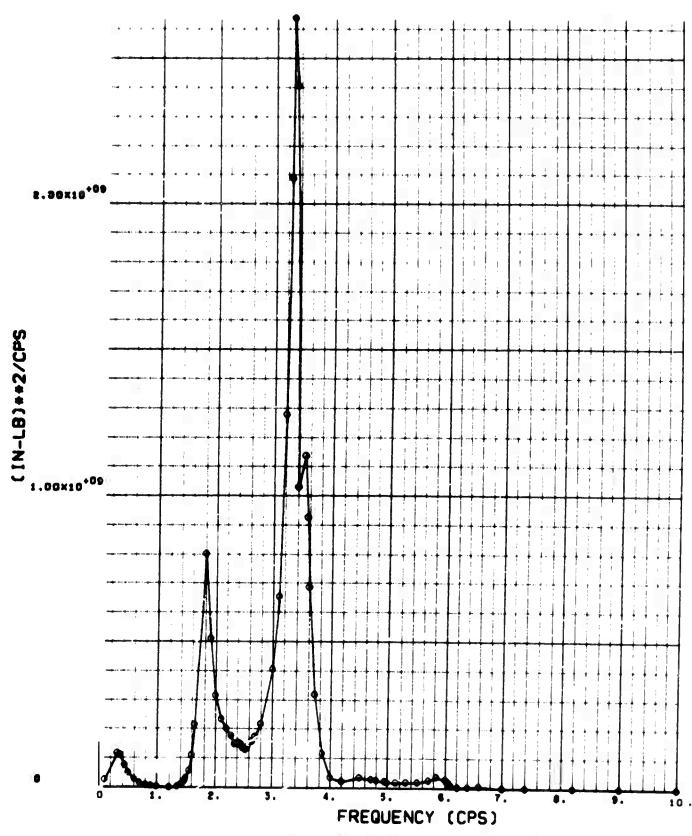


WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: '3,000 10 CPS

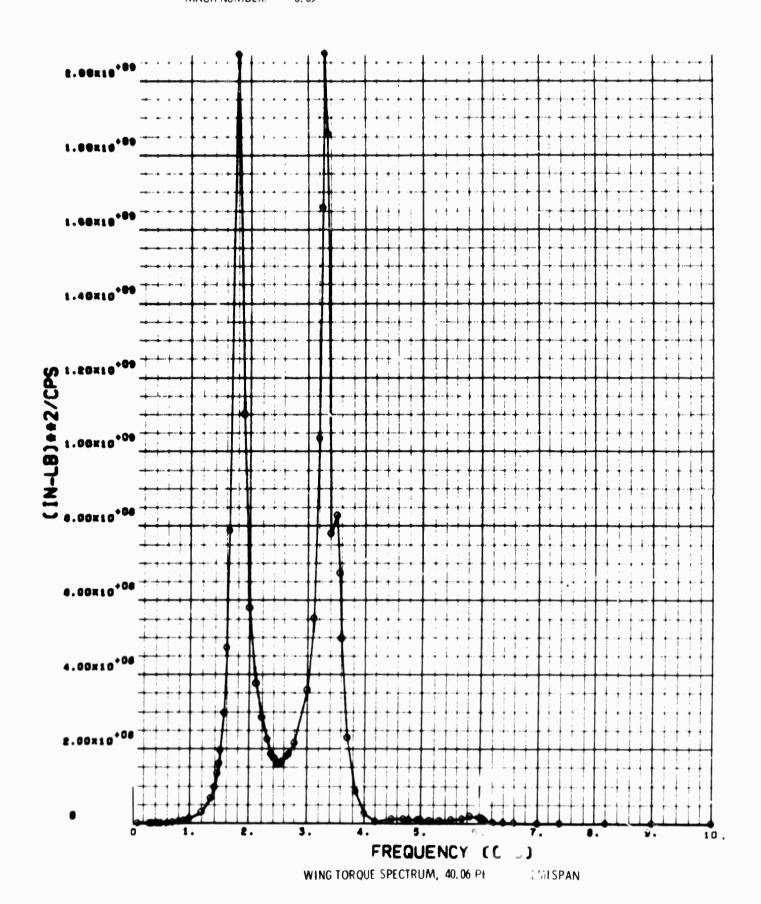


WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000



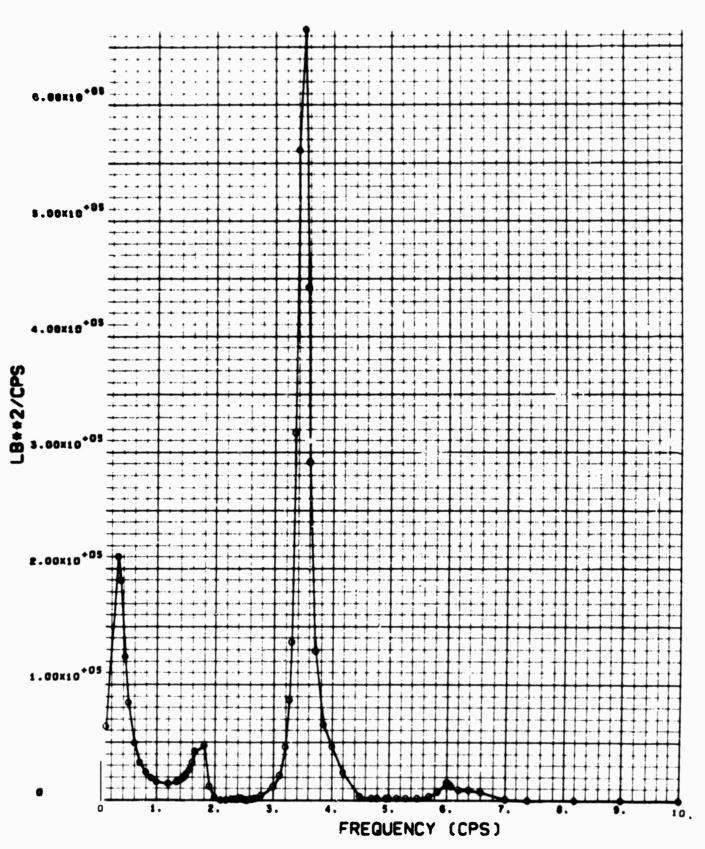
GROSS WEIGHT: ALTITUDE:

268, 000 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000

10 CPS

MACH NUMBER: 0.85

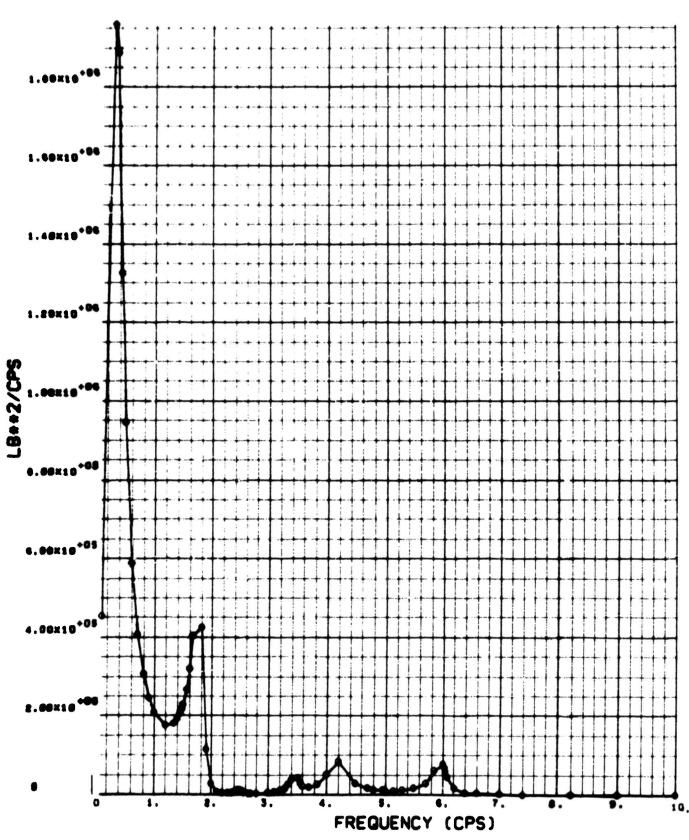


GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000

10 CPS



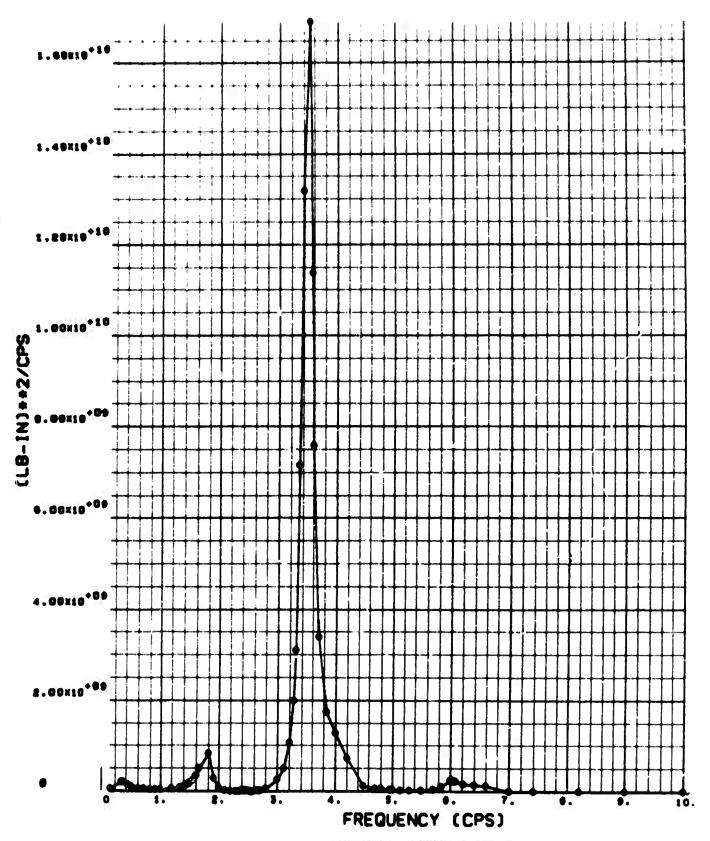
BODY SHEAR SPECTRUM,

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000

10 CPS



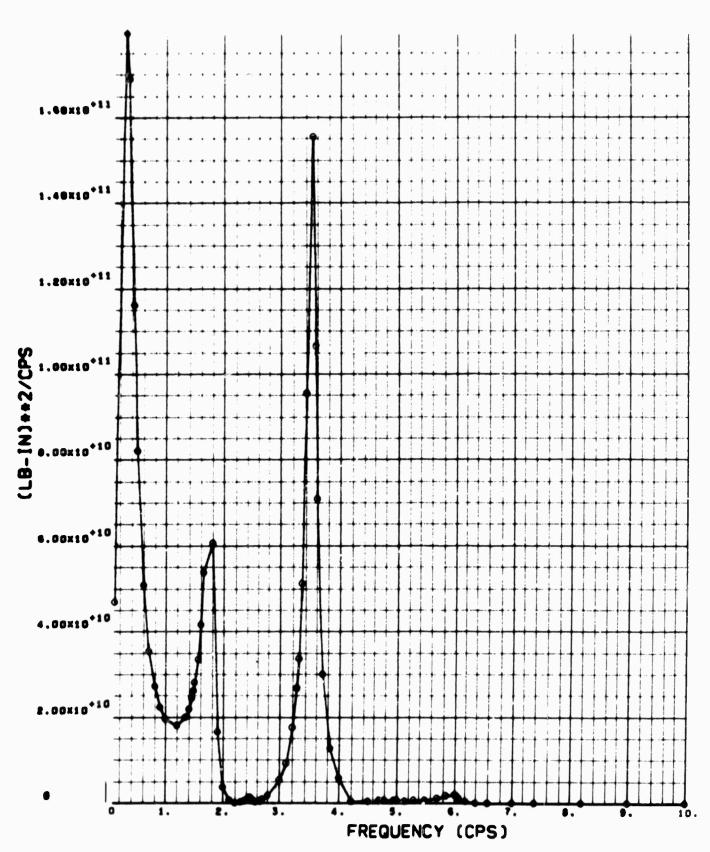
BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000

10 CPS



BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 320

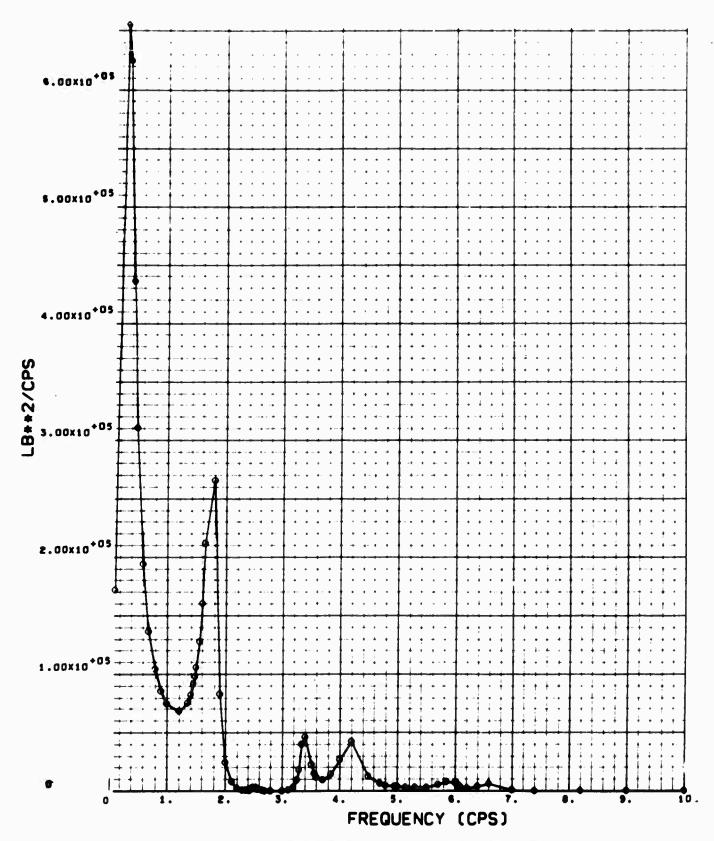
ANALYSIS CONDITION 2 WEIGHT CONDITION B

268, 000 FT 24, 000 FT

0.85

GROSS WEIGHT: ALTITUDE: MACH NUMPED.

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT



WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

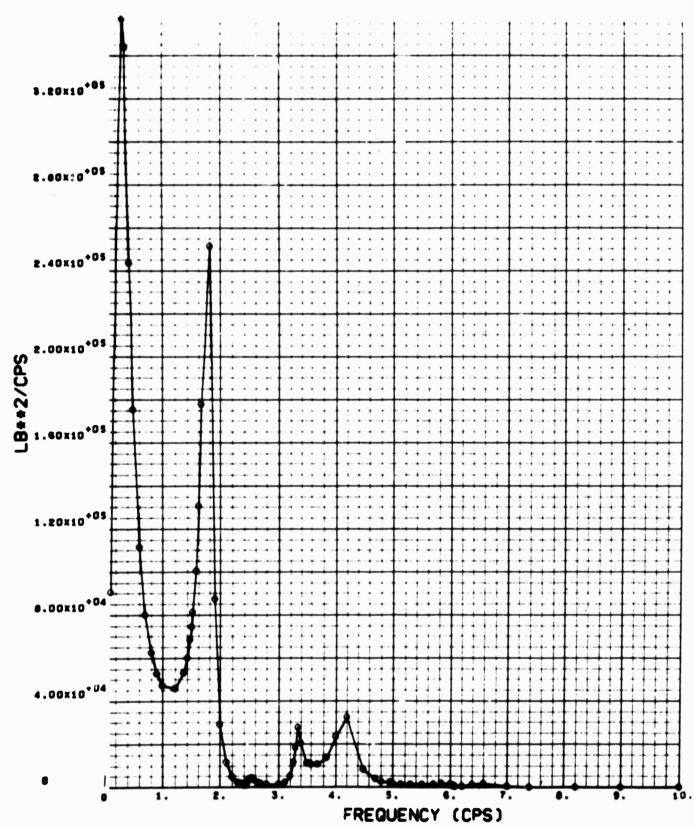
GROSS WEIGHT: ALTITUDE: MACH NUMBER:

THE STATE OF THE PROPERTY OF A LANDON

268, 000 FT 24, 000 FT

0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

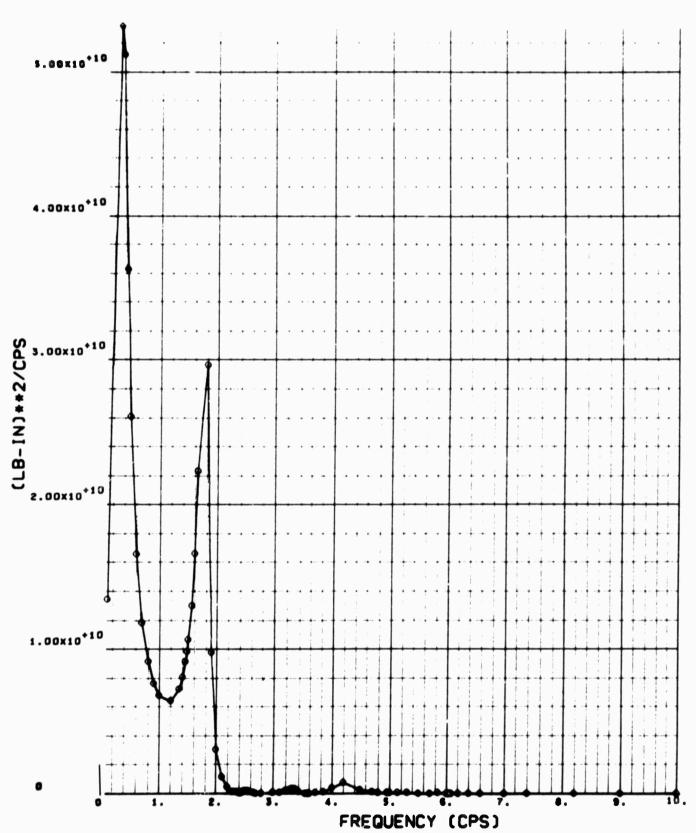


WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 FT 24, 000 FT 0. 85

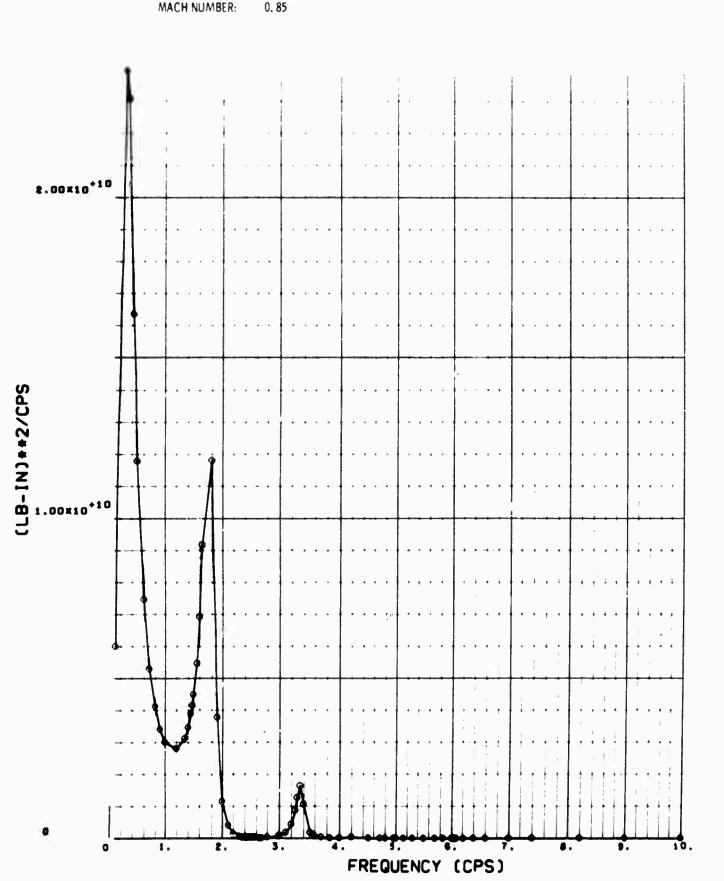
CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT



WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 268, 000 FT 24, 000 FT 0. 85 CUTOFF FREQUENCY: SCALE OF TURBULENCE:

10 CPS 5, 000 FT



WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

wer Addition

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 268, 000 FT 24, 000 FT 0. 85 CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT

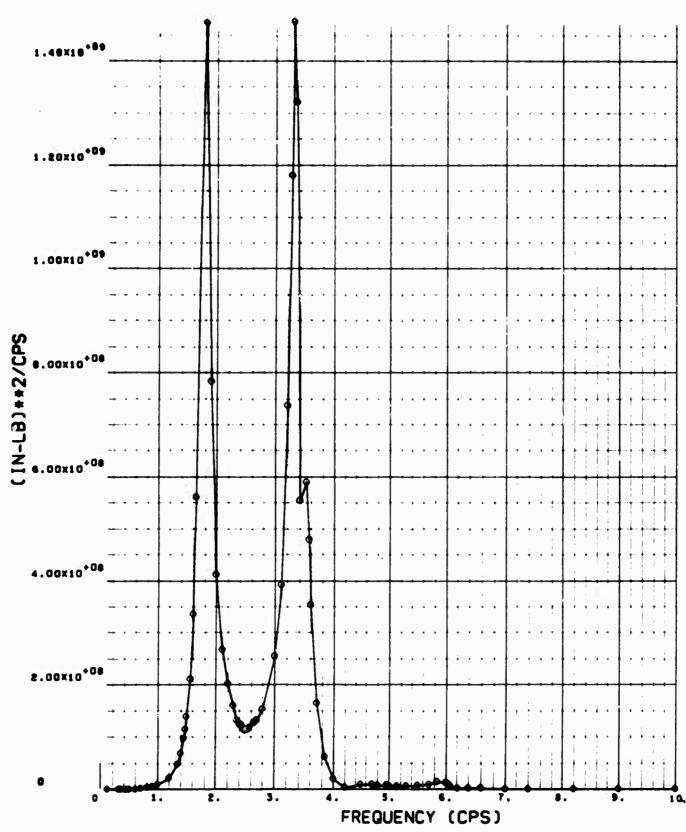
1.40×10 +09 1.20×10⁺⁰⁹ (IN-L3) **2/CPS 6.00x10⁺⁰⁸ 4.00×10⁺⁰⁰ 2.00×10⁺⁰⁸ FREQUENCY (CPS)

WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 FT 24,000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT



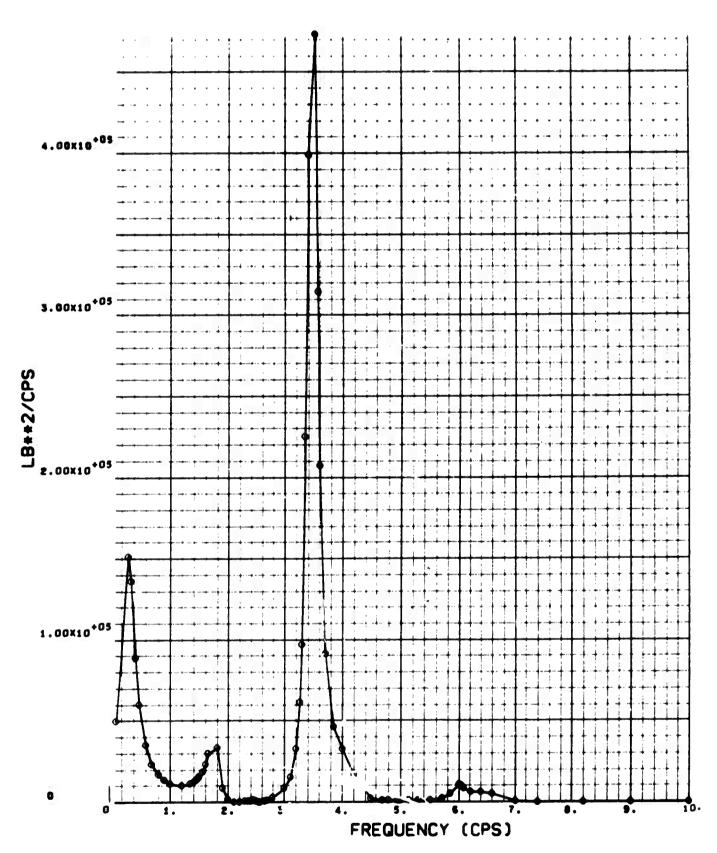
WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 FT 24, 000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

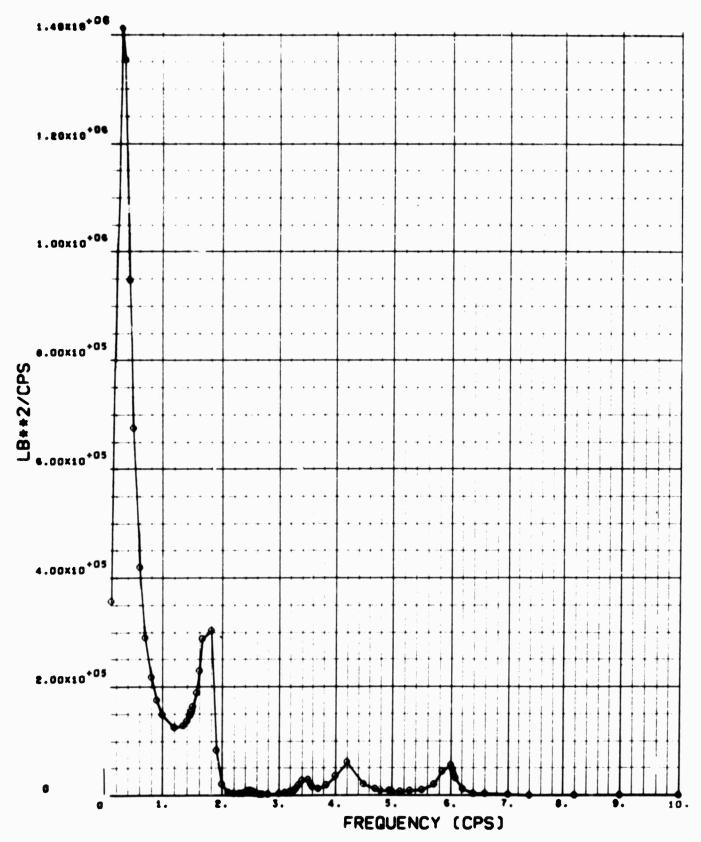
10 CPS



GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 FT 24, 000 FT 0.85

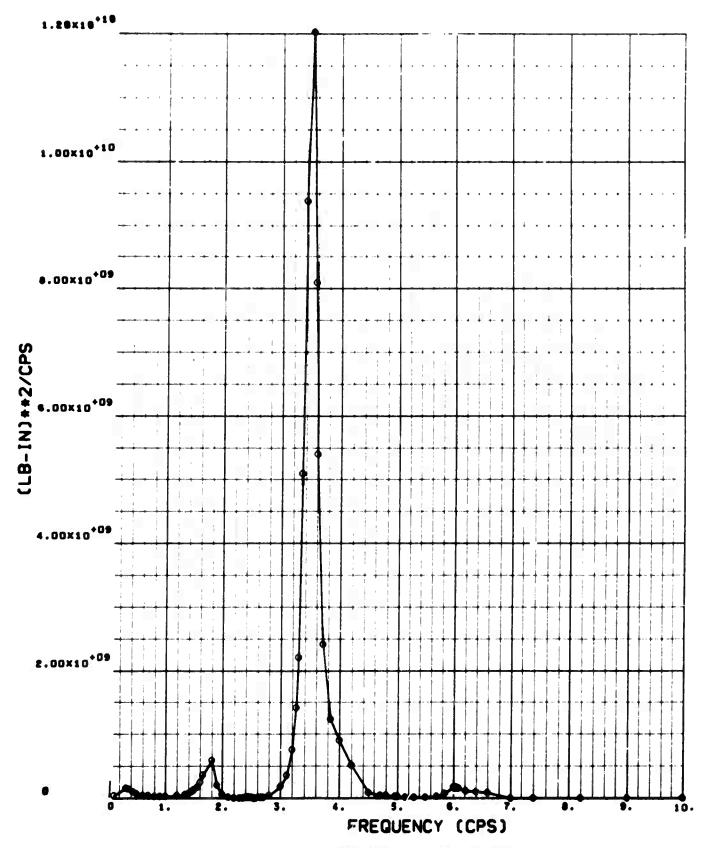
CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT



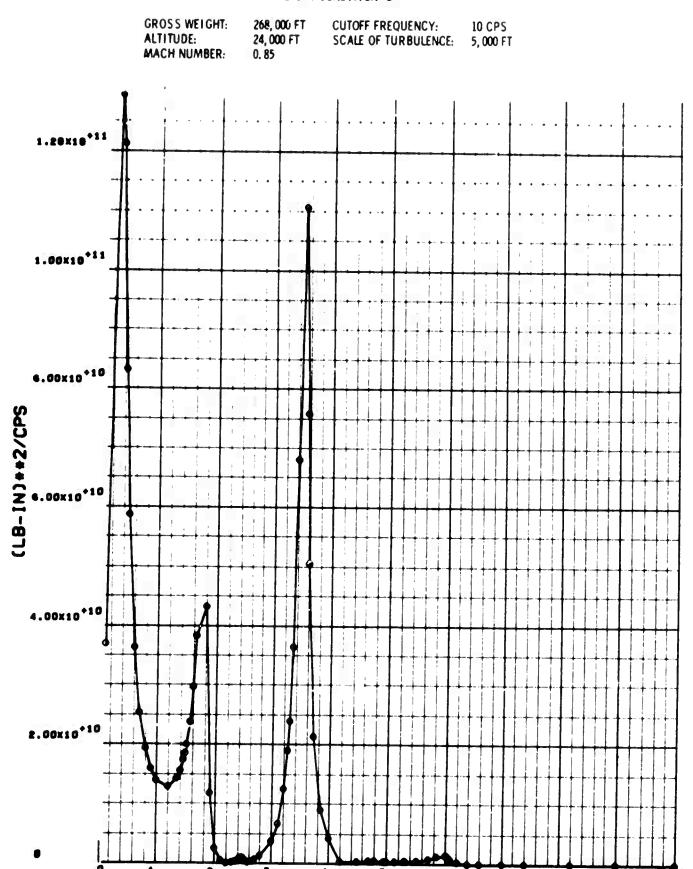
GROSS WEIGHT: ALTITUDE: MACH NUMBER:

268, 000 FT 24, 000 FT 0. 85 CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

10 CPS



BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540



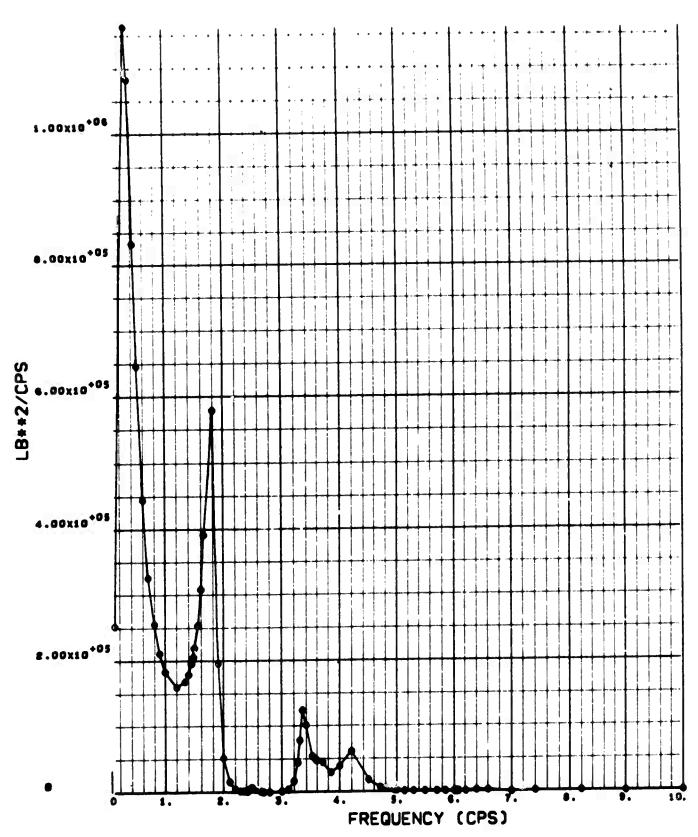
BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

FREQUENC' (CPS)

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

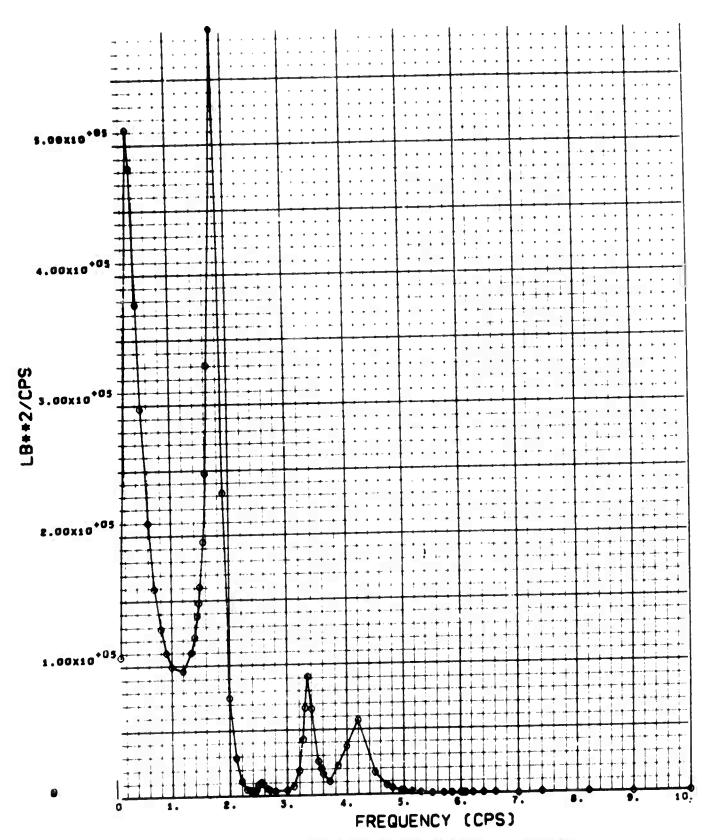


WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 190, 590 LB 24,000 FT 0.85

CUTOFF FREQUENCY. SCALE OF TURBULENCE: 1,000 FT

10 CP3

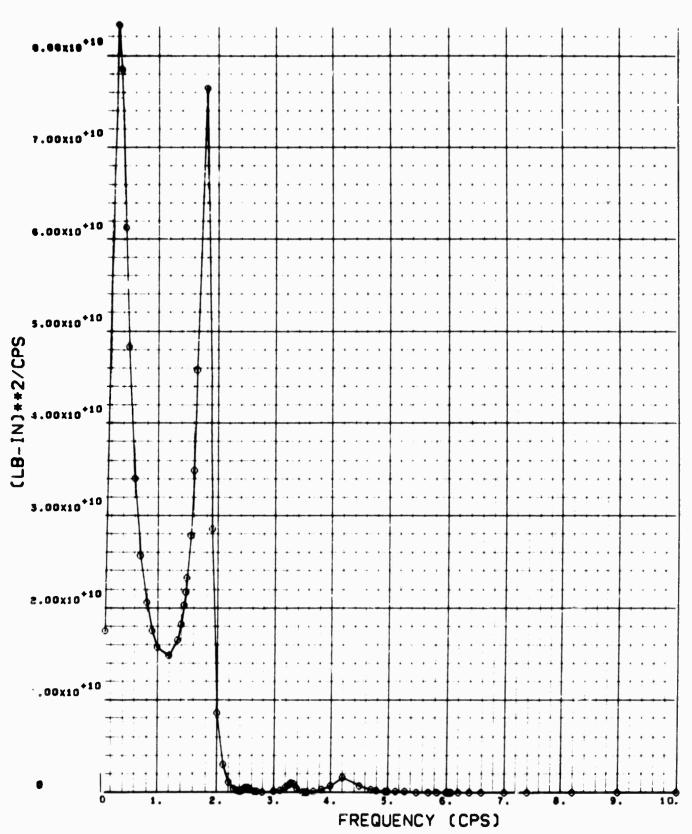


WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

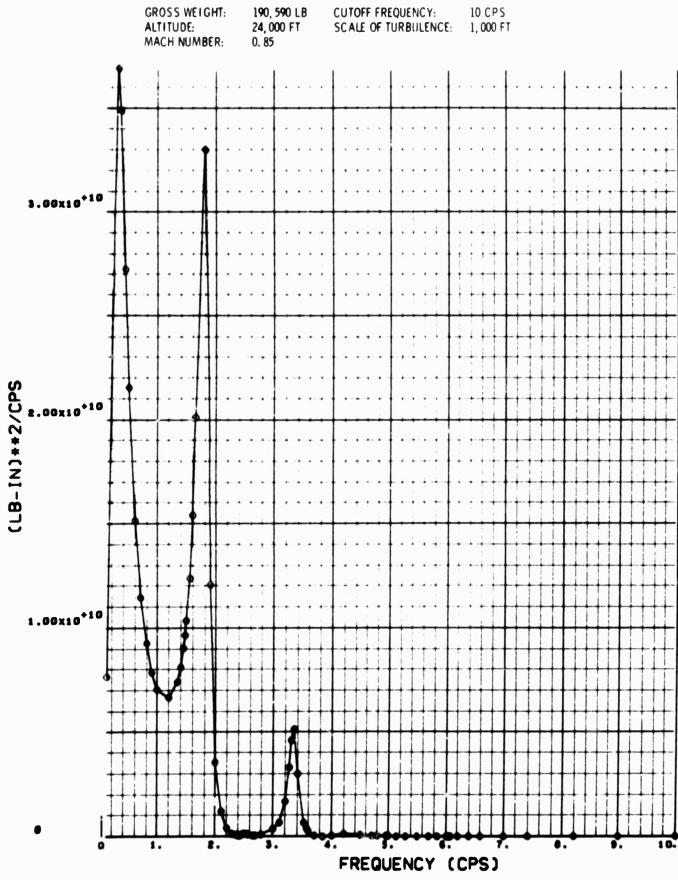
190, 590 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT



WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 3
WEIGHT CONDITION C



GROSS WEIGHT: ALTITUDE: MACH NUMBER: 190, 590 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE:

10 CPS 1, 000 FT

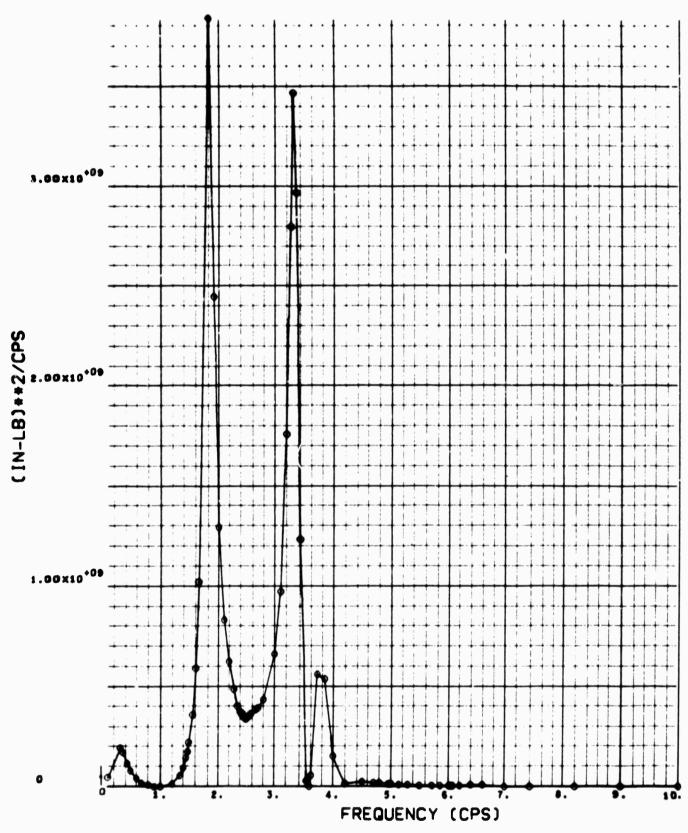
3.00x10*09 (IN-LB) **2/CPS 1.00x10⁺⁰⁹ FREQUENCY (CPS)

WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

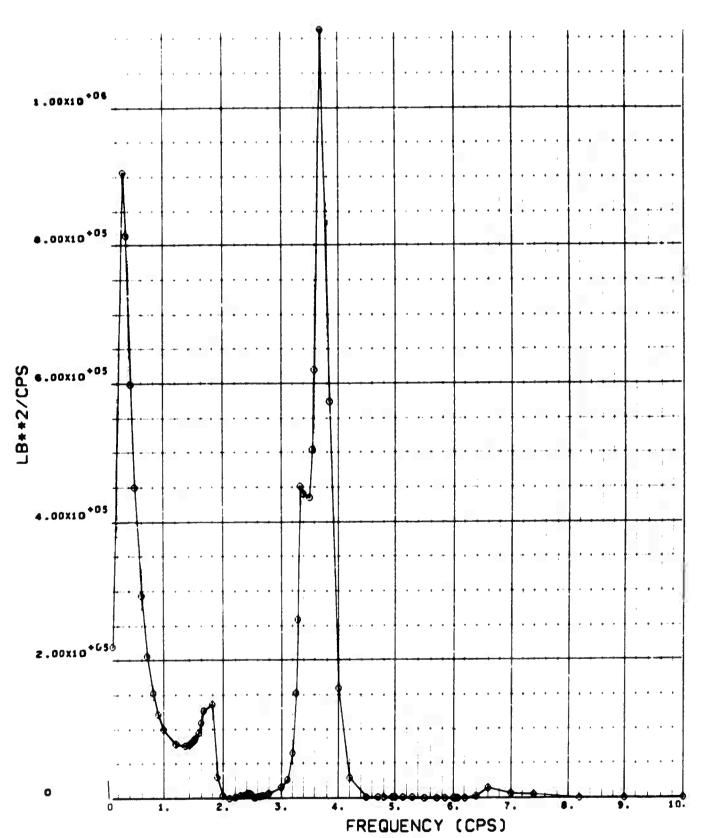


WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

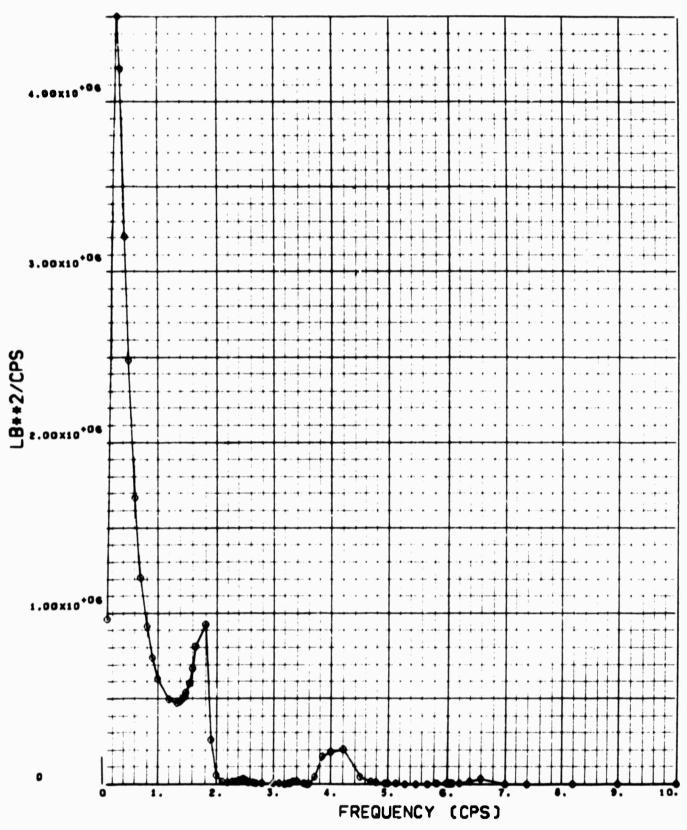


GROSS WEIGHT: ALTITUDE:

190, 590 LB 24, 000 FT

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

MACH NUMBER: 0.85



GROSS WEIGHT: ALTITUDE:

190,590 LB 24,000 FT

CUTOFF FREQUENCY: 16 CPS SCALE OF TURBULENCE: 1,000 FT

MACH NUMBER:

0.85

2.00x10⁺¹⁰ 1.00x10⁺¹⁰

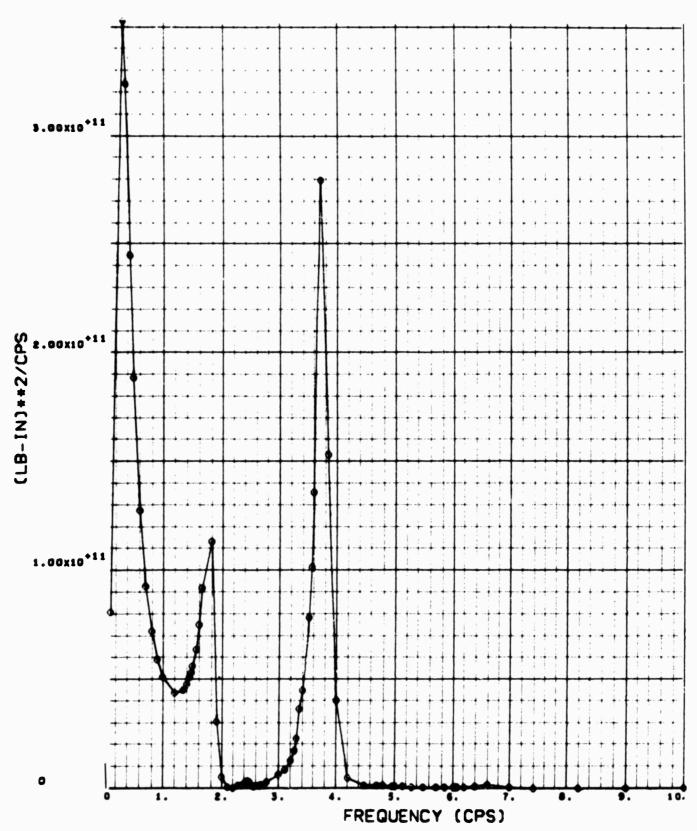
BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

FREQUENCY (CPS)

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

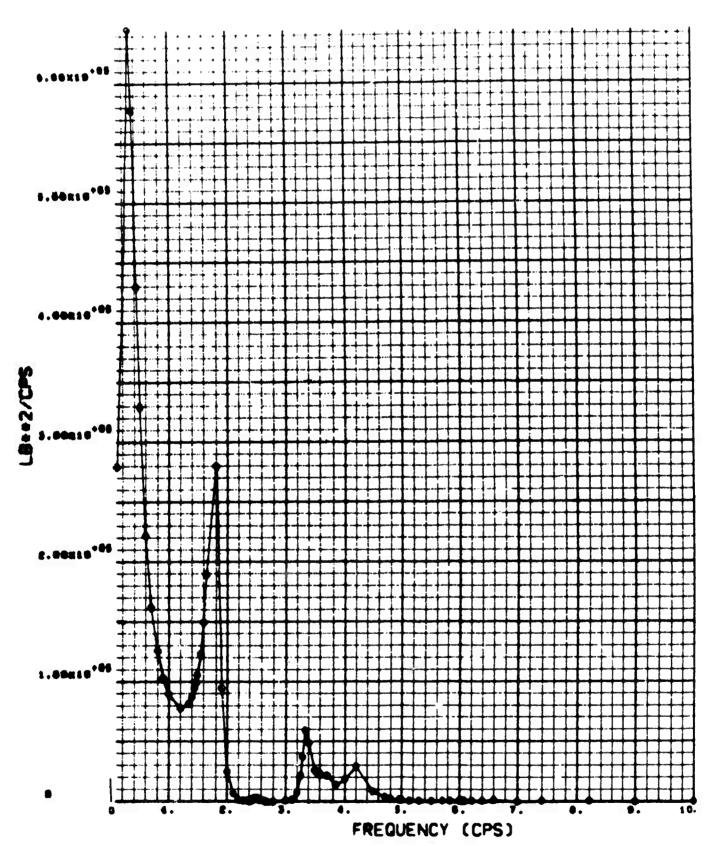


BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT

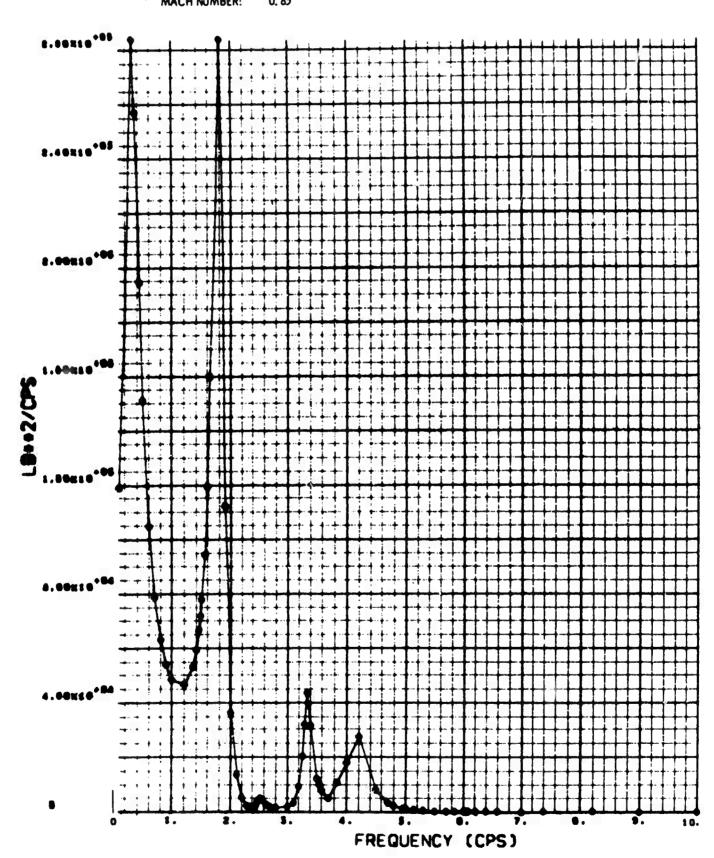


WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24,000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT

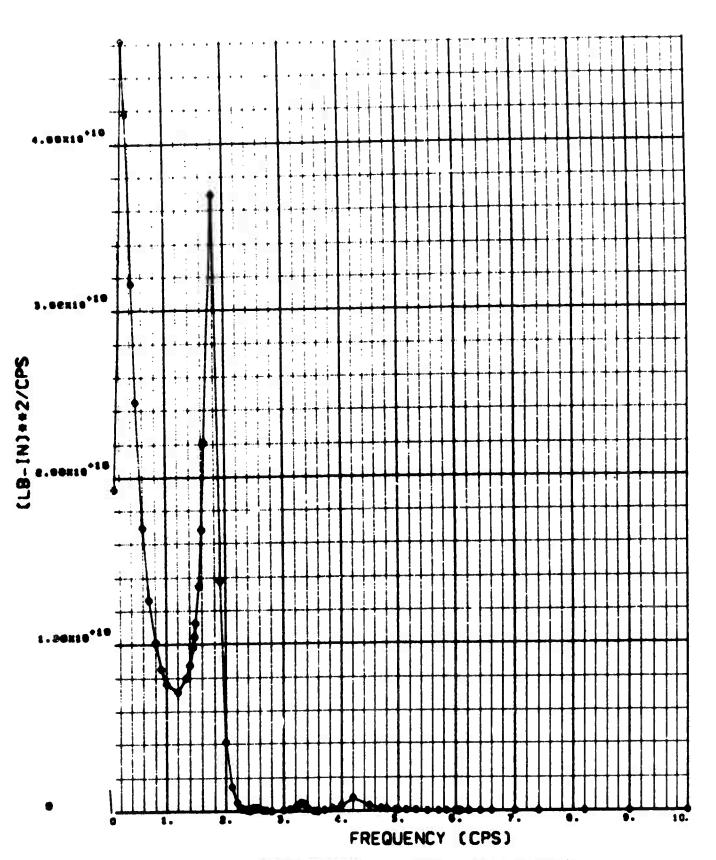


WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT



WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

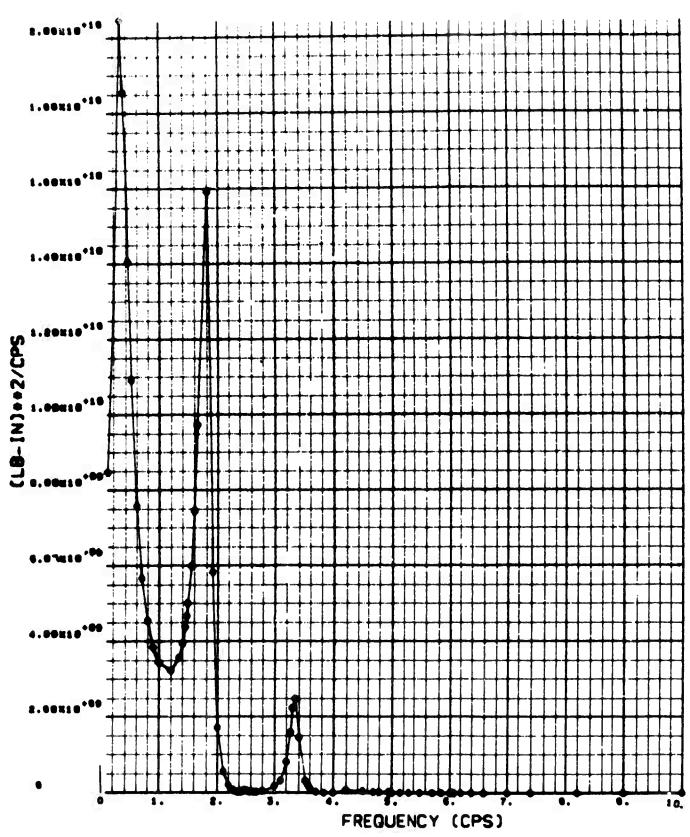
GROSS WEIGHT: ALTITUDE:

190, 590 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

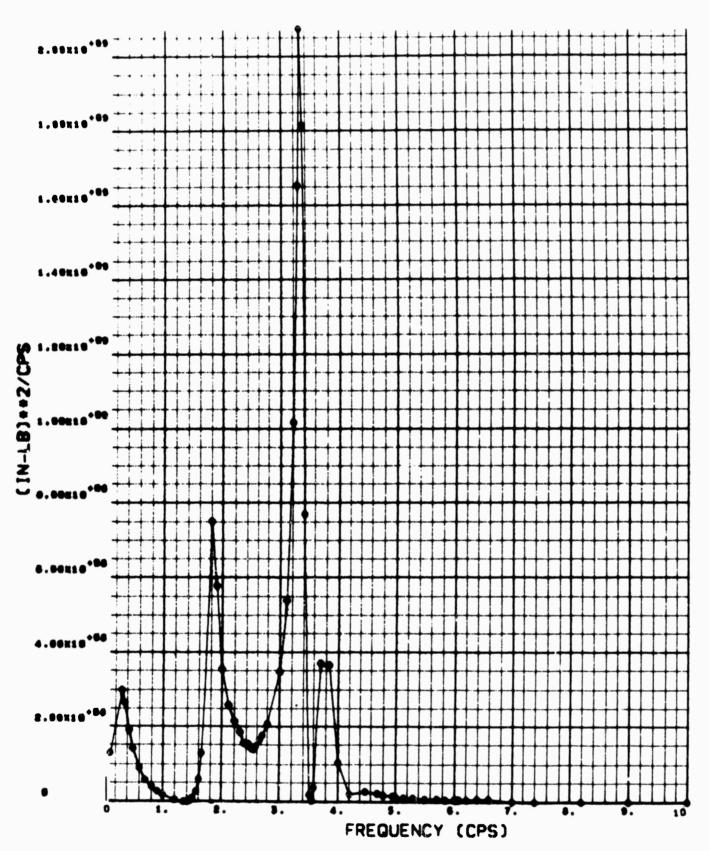
MACH NUMBER: 0.85



WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0. 85 CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT



WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE:

190, 590 LB 24,000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

MACH NUMBER: 0.85

FREQUENCY (CPS)

WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

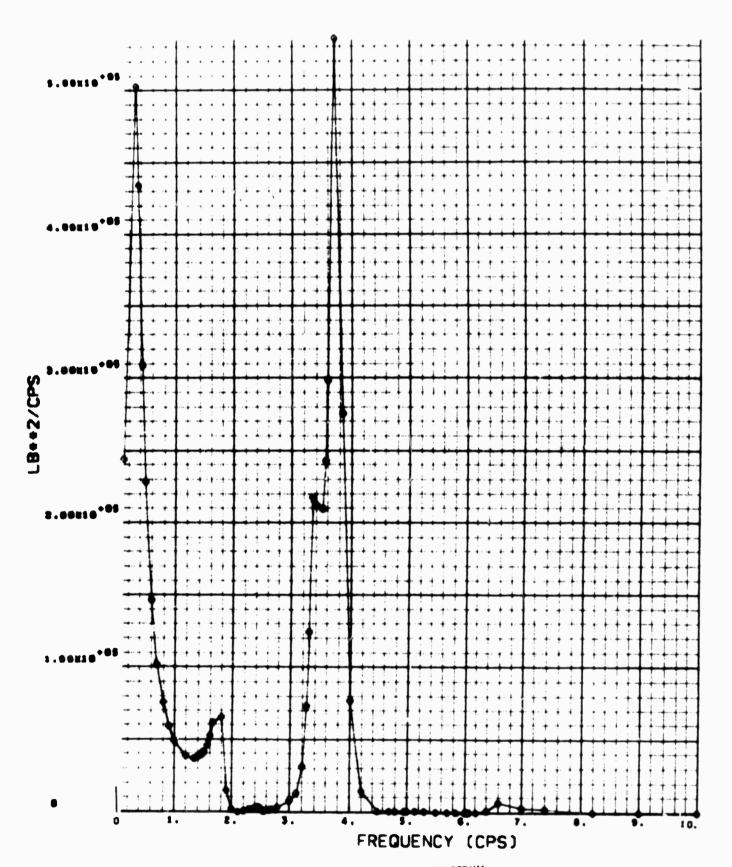
GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

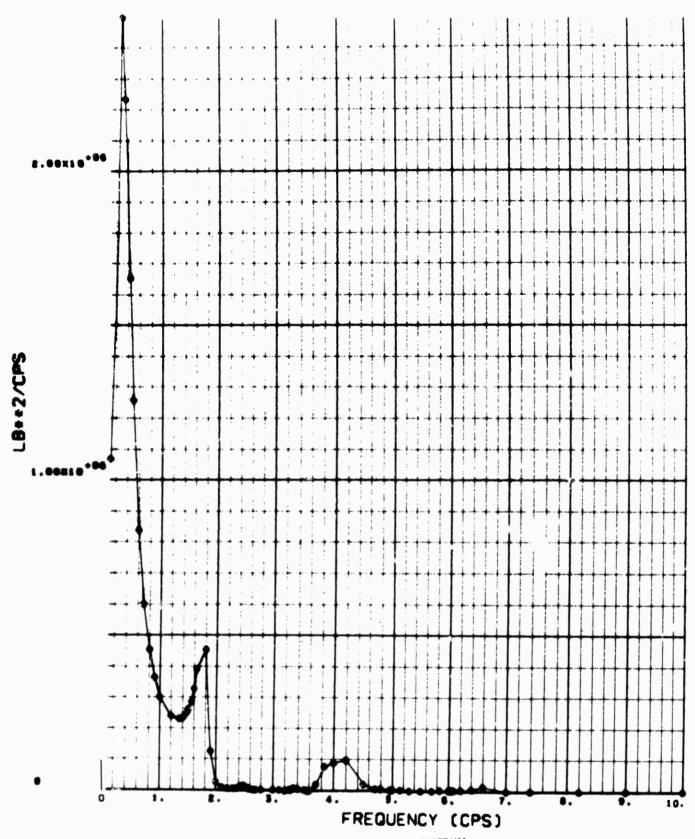
0.85



GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0.85

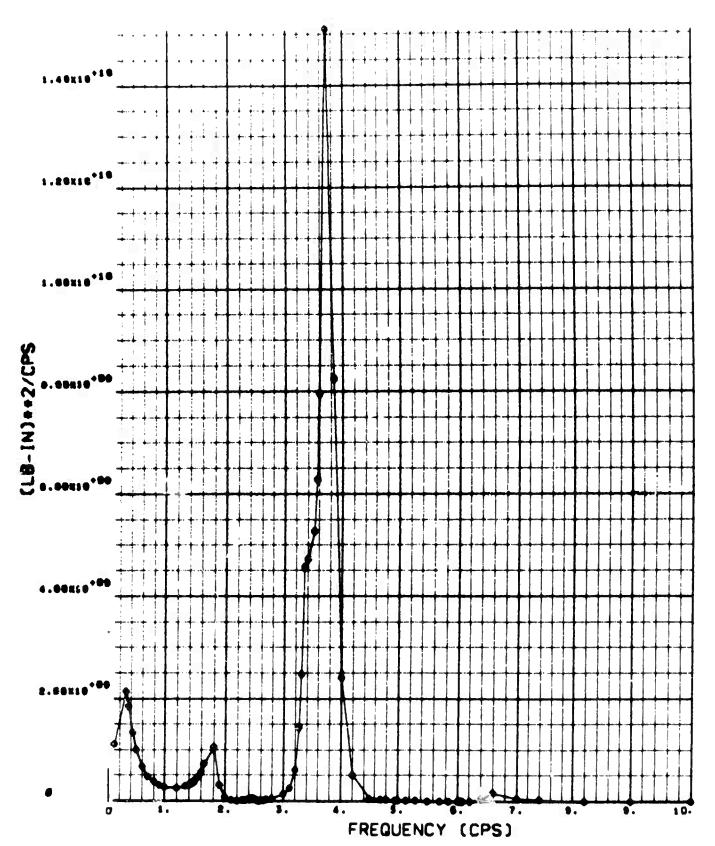
CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT



GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT



BODY BENDING MOMENT SPECTRUM, **BODY BALANCE STATION: 540**

GROSS WEIGHT: ALTITUDE:

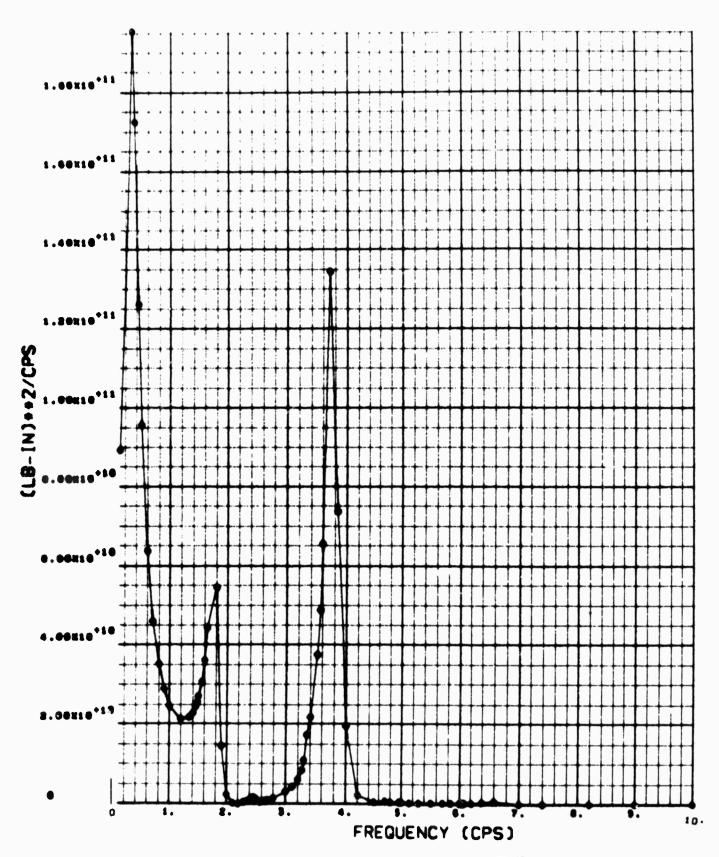
190, 590 LB 24,000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

MACH NUMBER:

0.85



BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

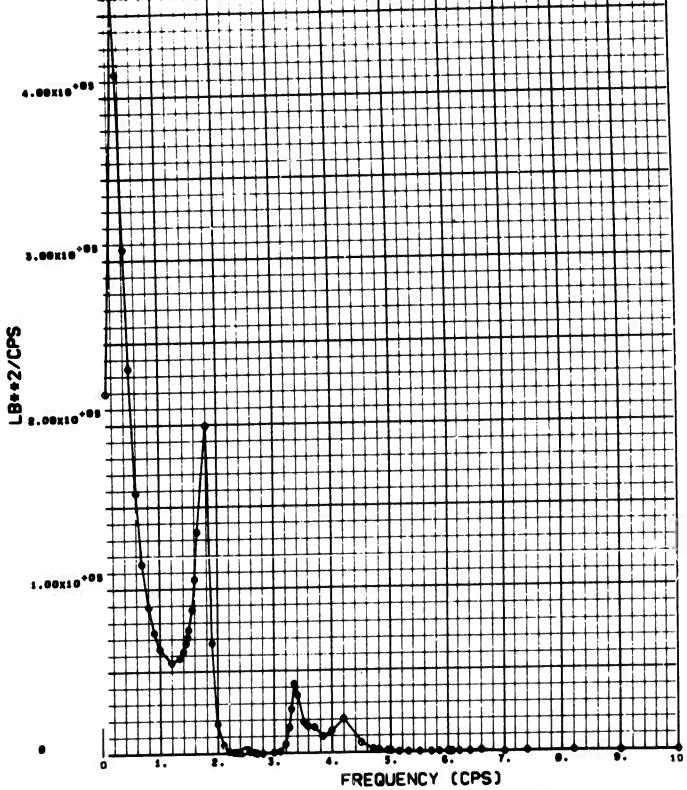
GROSS WEIGHT: ALTITUDE:

190, 590 LB 24, 000 FT 0. 85

10 CPS

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT

MACH NUMBER:

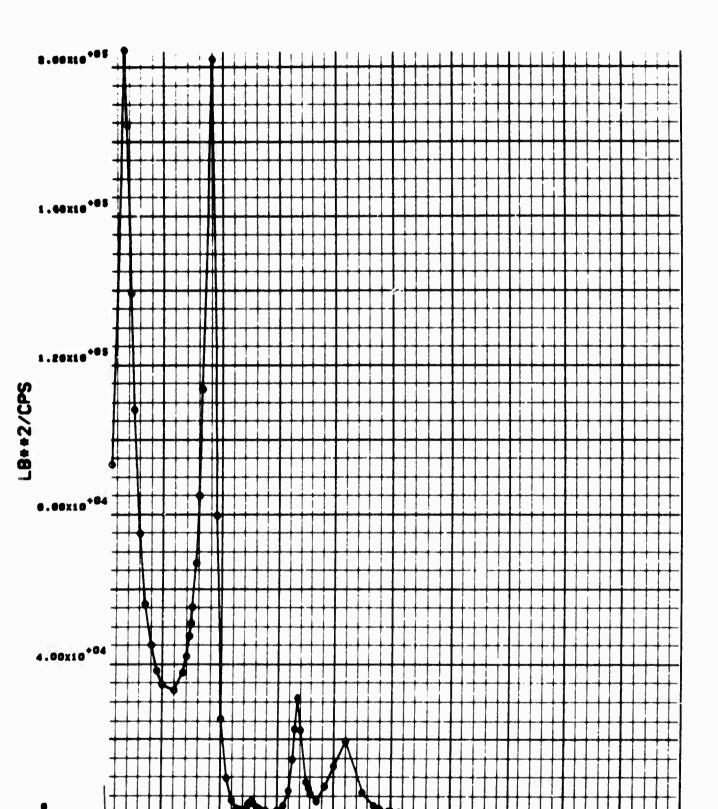


WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

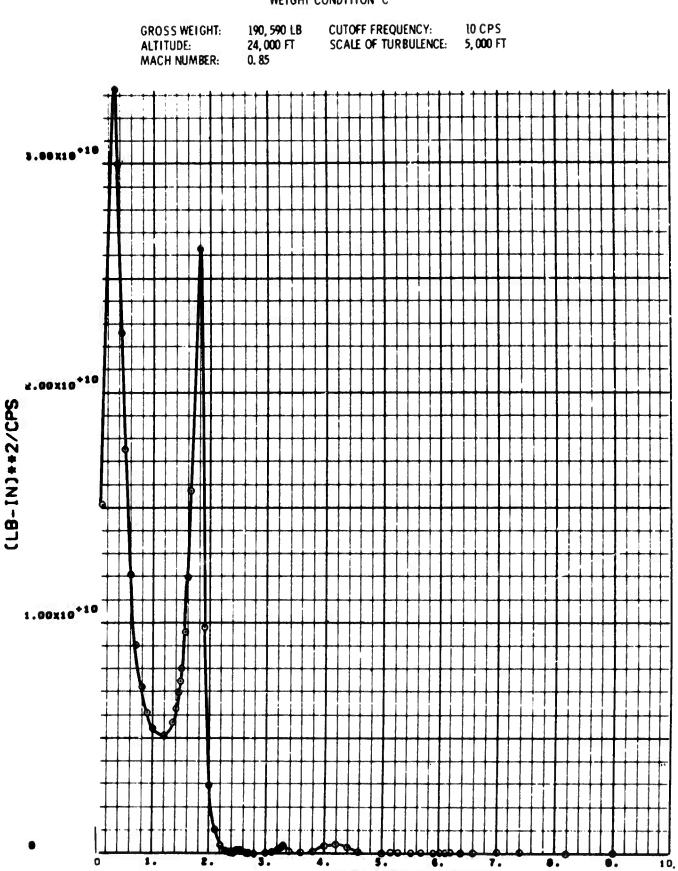
190, 590 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT



WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

FREQUENCY (CPS)



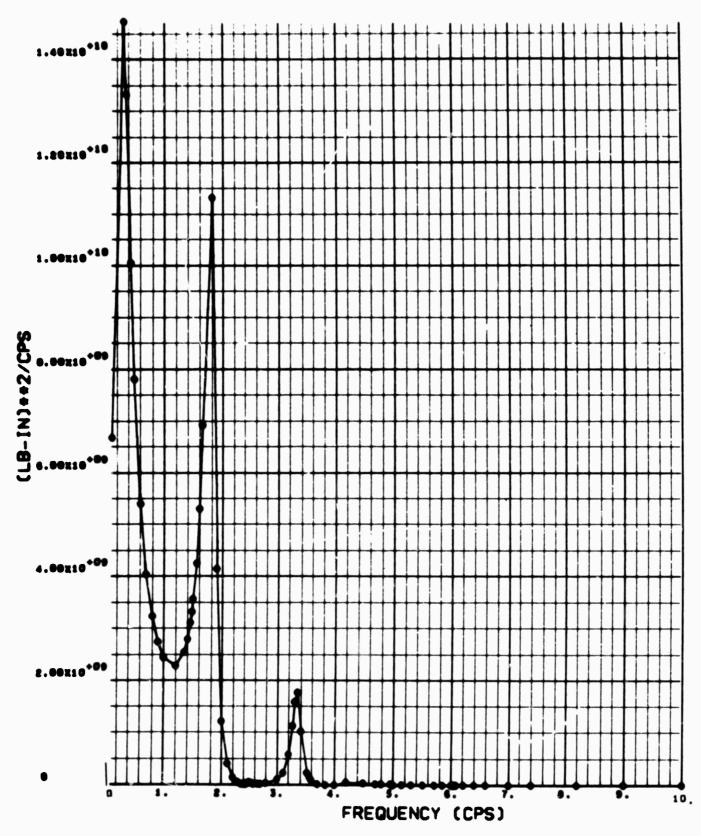
WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

FREQUENCY (CPS)

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24,000 FT 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT



WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

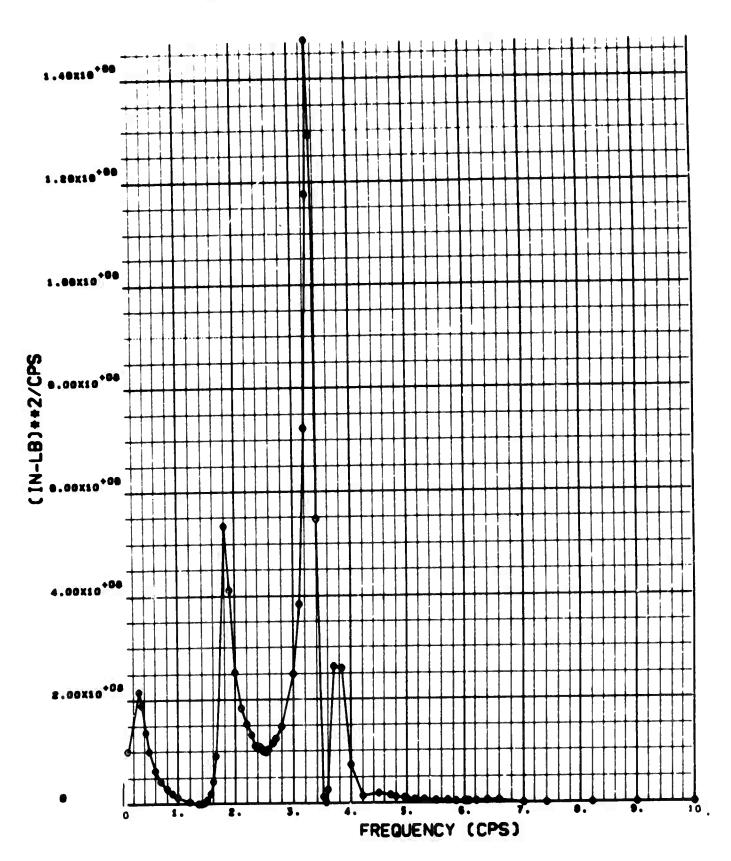
GROSS WEIGHT: ALTITUDE:

190, 590 LB 24, 000 FT 0, 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT

10 CPS

MACH NUMBER:



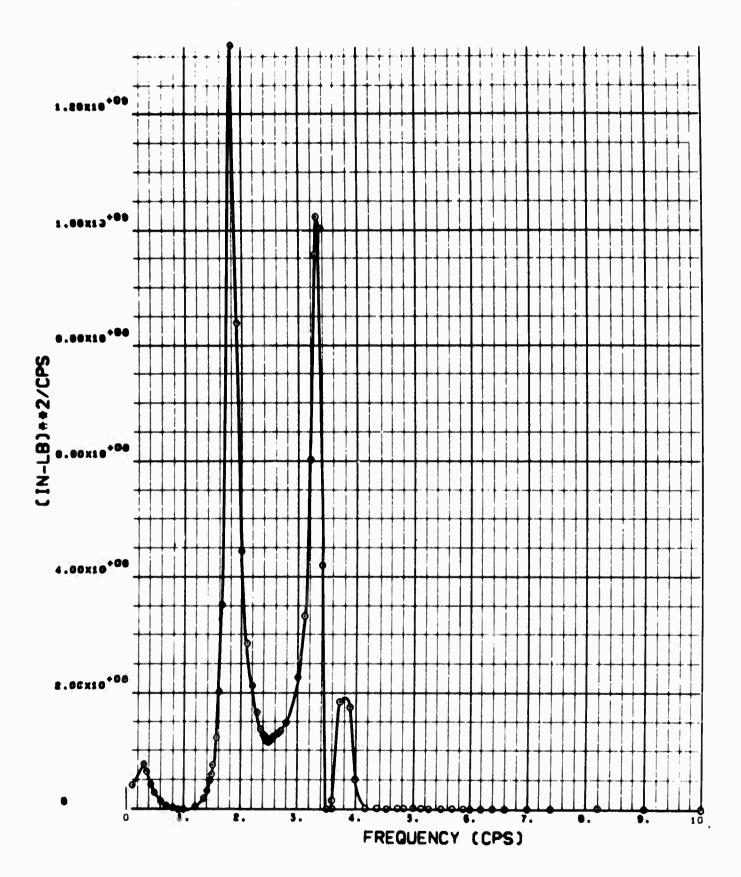
WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT:

190, 590 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT

ALTITUDE: MACH NUMBER:



WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE:

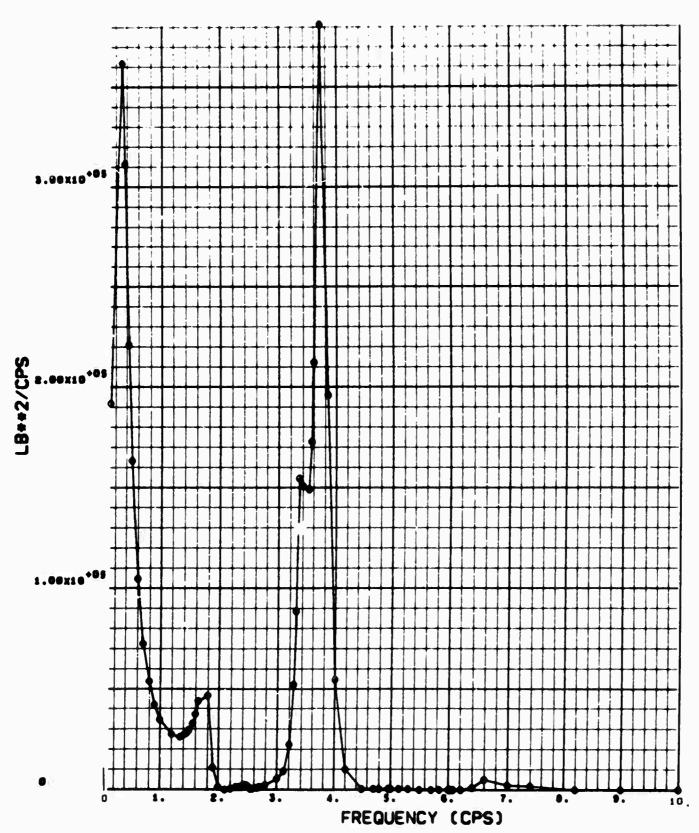
190, 590 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5, 000 FT

10 CPS

MACH NUMBER:

0. 85

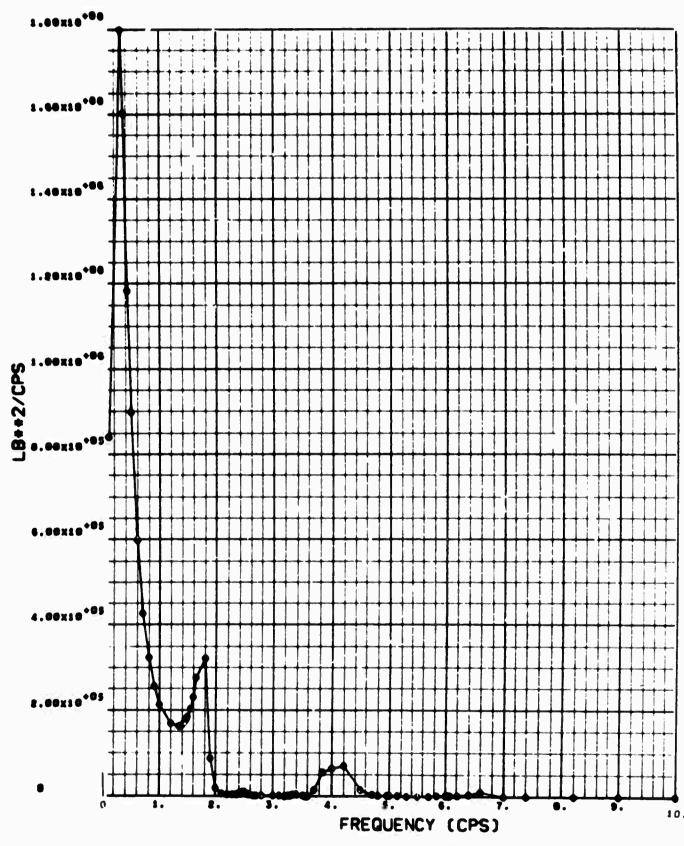


BODY SHEAR SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT

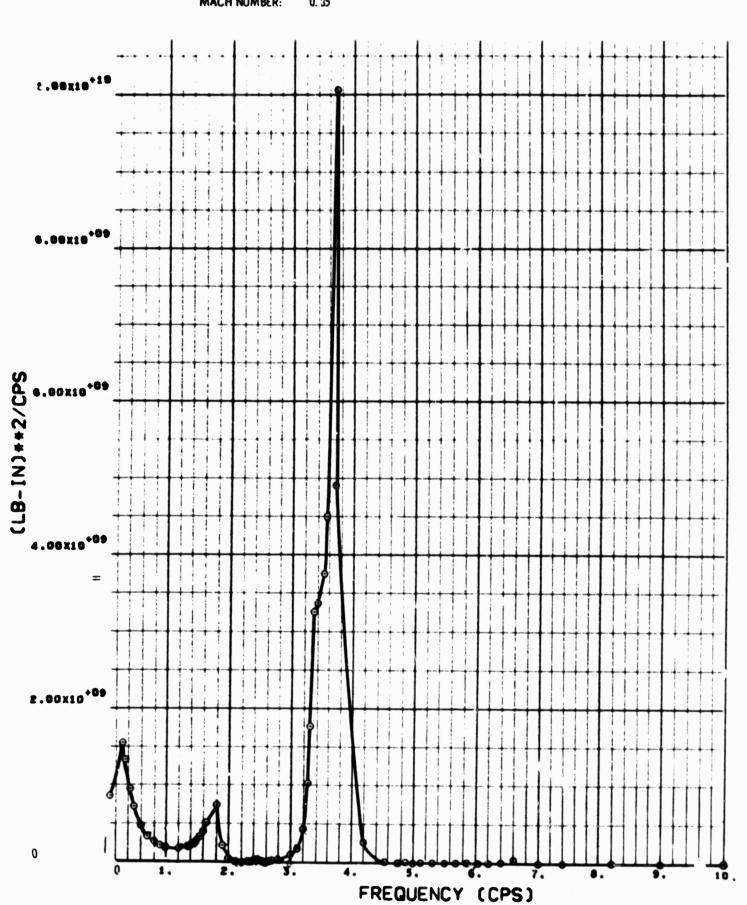


BODY SHEAR SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

190, 590 LB 24, 000 FT 0. 35

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT



GROSS WEIGHT: ALTITUDE:

190, 590 LB 24,000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

10 CPS

MACH NUMBER: 0.85

1.40210*12 1.20210*11 1.00x10*11 4.00x10*10 2.00x10⁺¹⁰ 4. FREQUENCY (CPS)

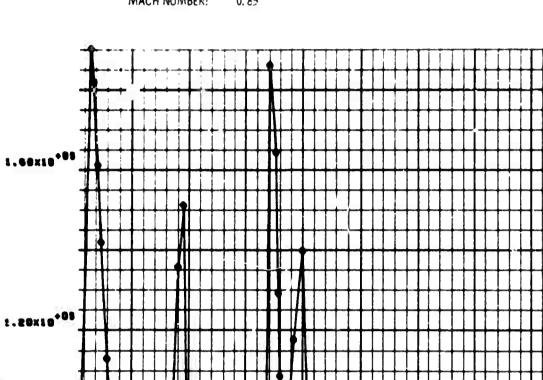
> BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

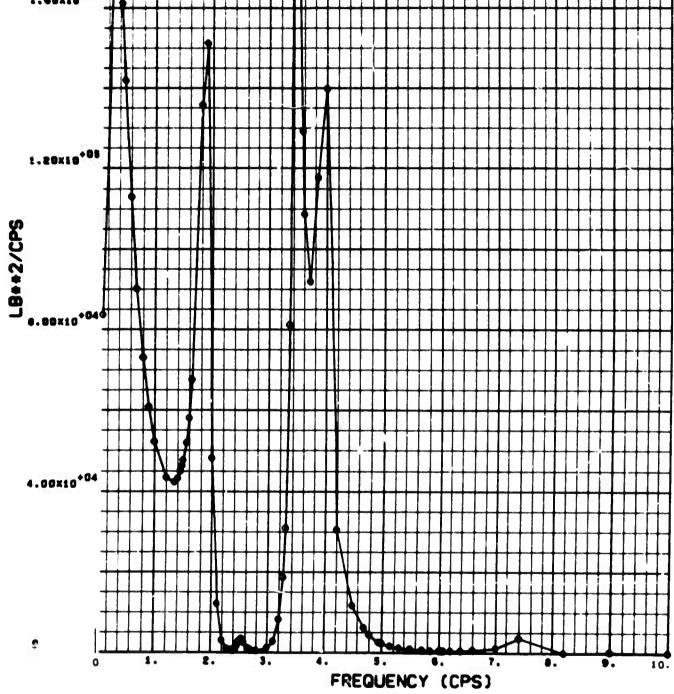
GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

10 CPS





WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

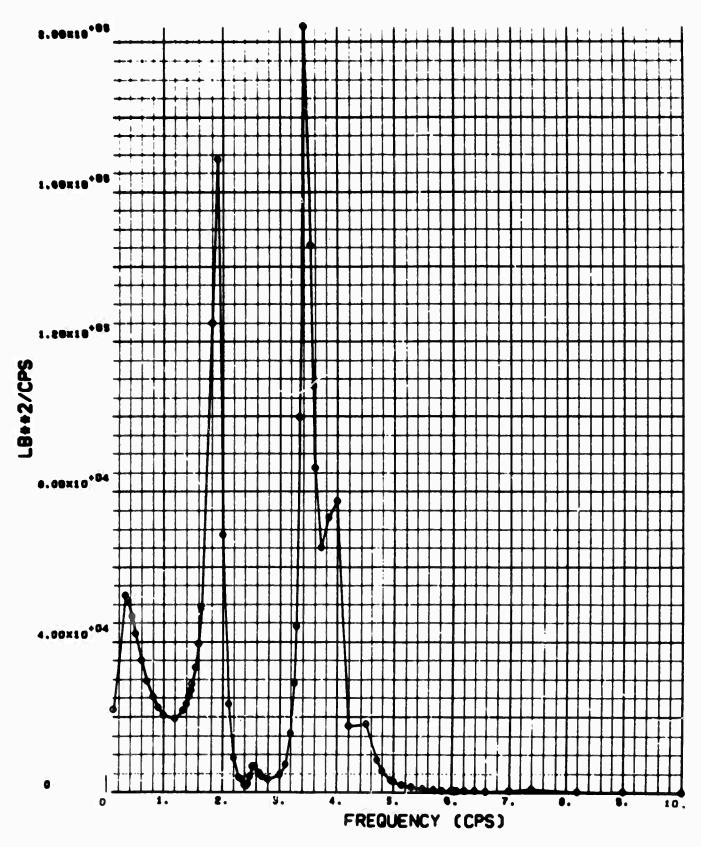
GROSS WEIGHT: ALTITUDE:

107, 260 LB 24, 000 FT

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

MACH NUMBER:

0.85



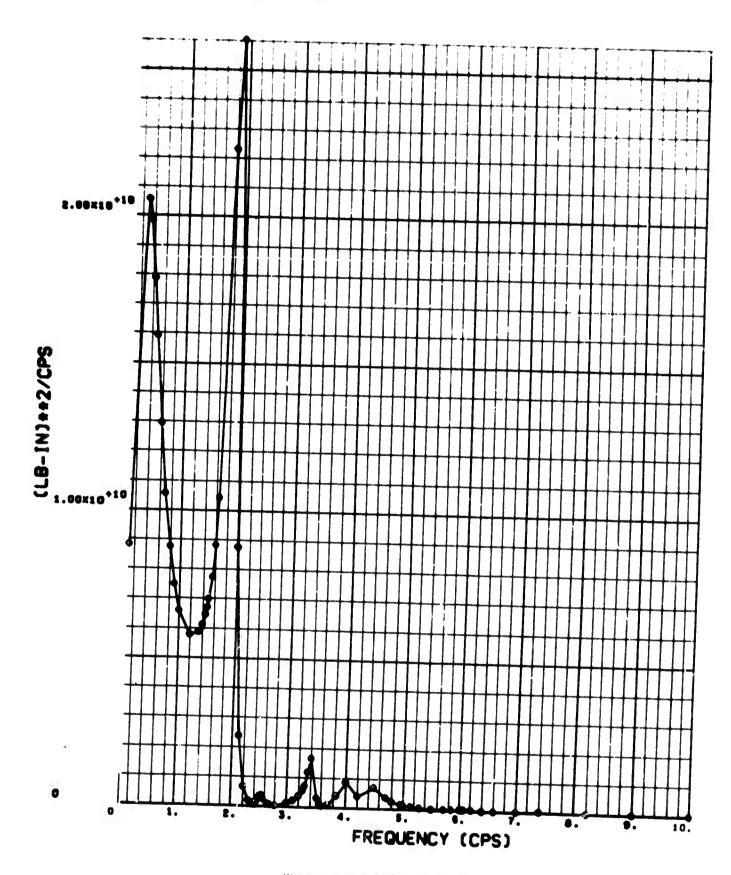
WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24,000 FT

0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT



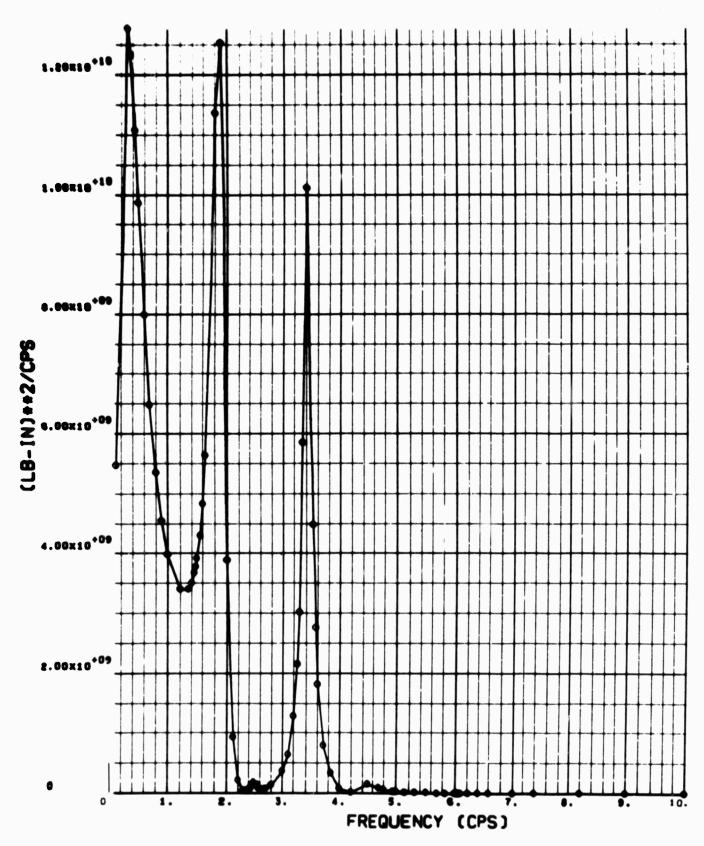
WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24,000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

10 CPS

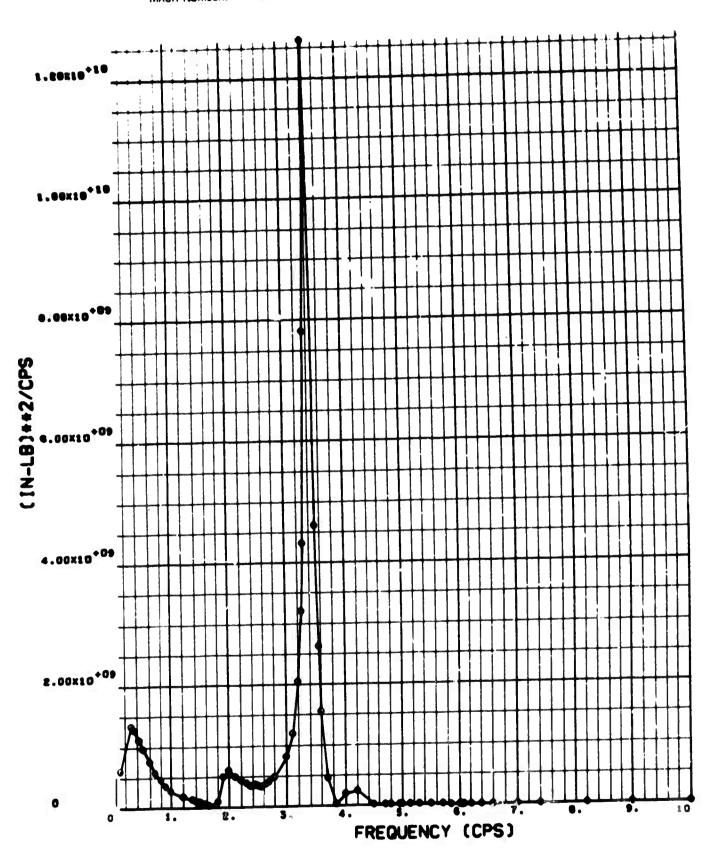


WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT



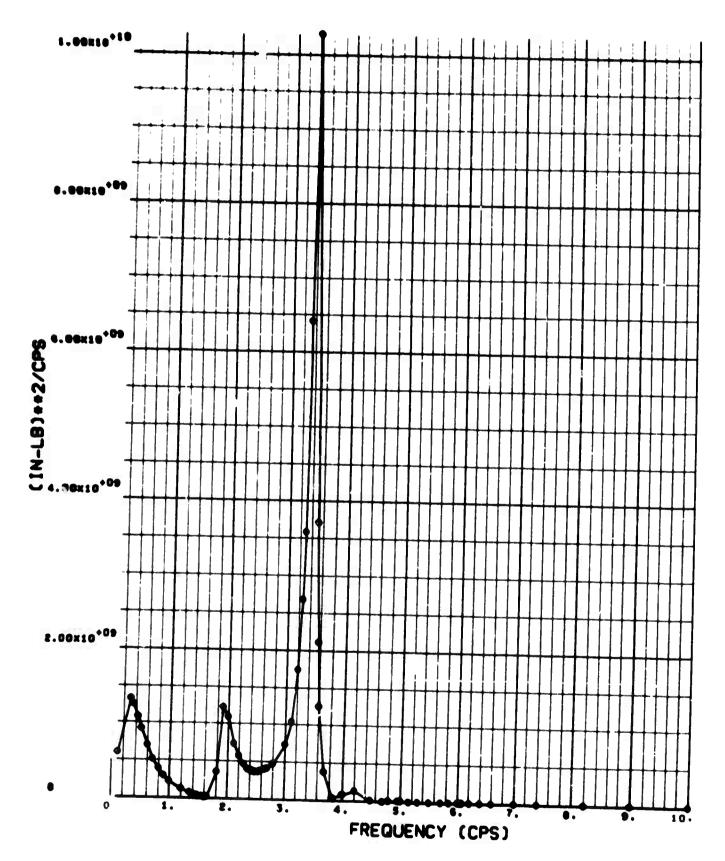
WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 4 WEIGHT CONDITION D

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT



WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE:

107, 260 LB 24, 000 FT

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

MACH NUMBER:

0.85

LB+2/CPS 2.00×10⁺⁰⁵ 1.00×10+05 FREQUENCY (CPS)

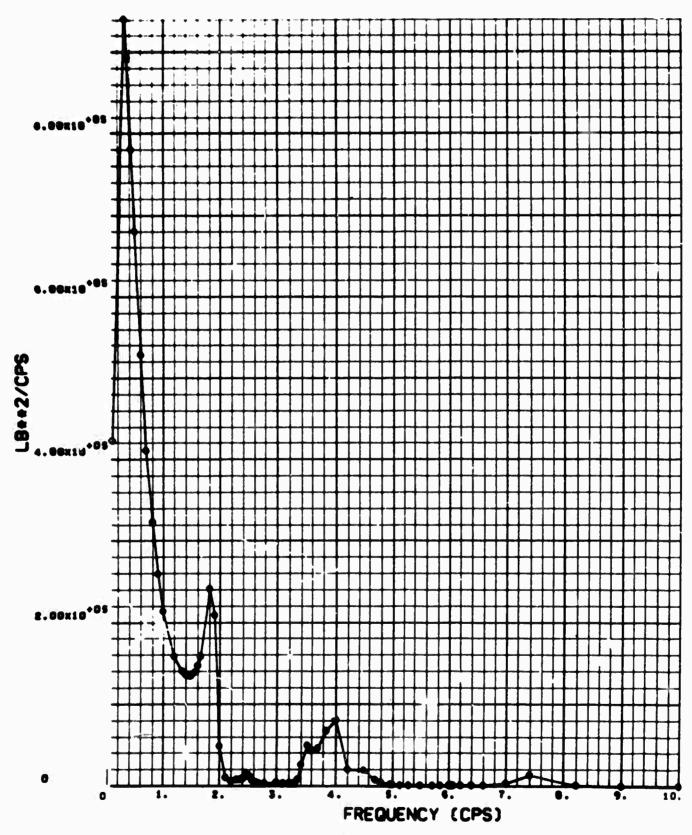
BODY SHEAR SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

10 CPS



BODY SHEAR SPECTRUM, BODY BALANCE STATION: 820

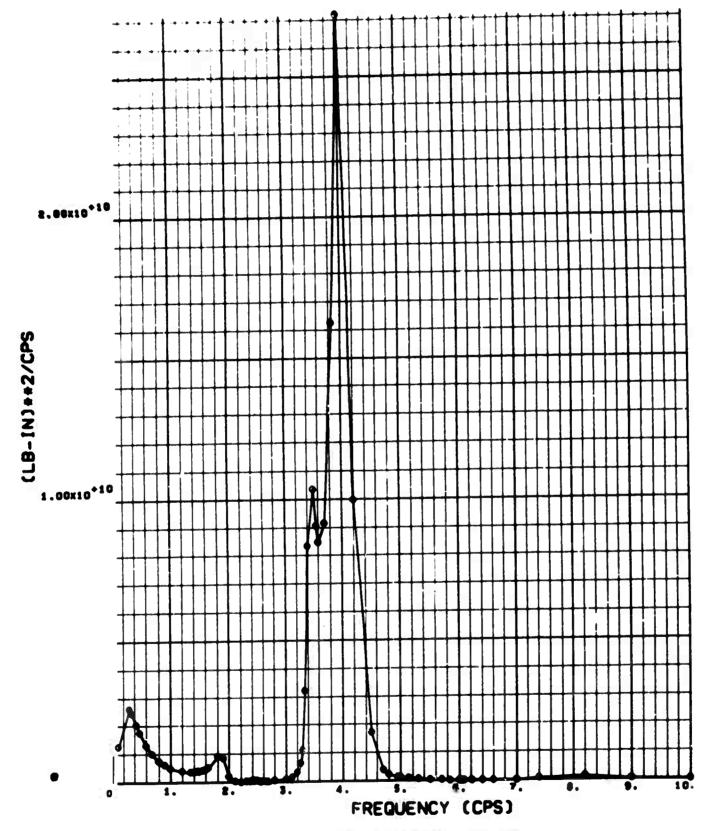
ANALYSIS CONDITION 4 WEIGHT CONDITION D

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

10 CPS



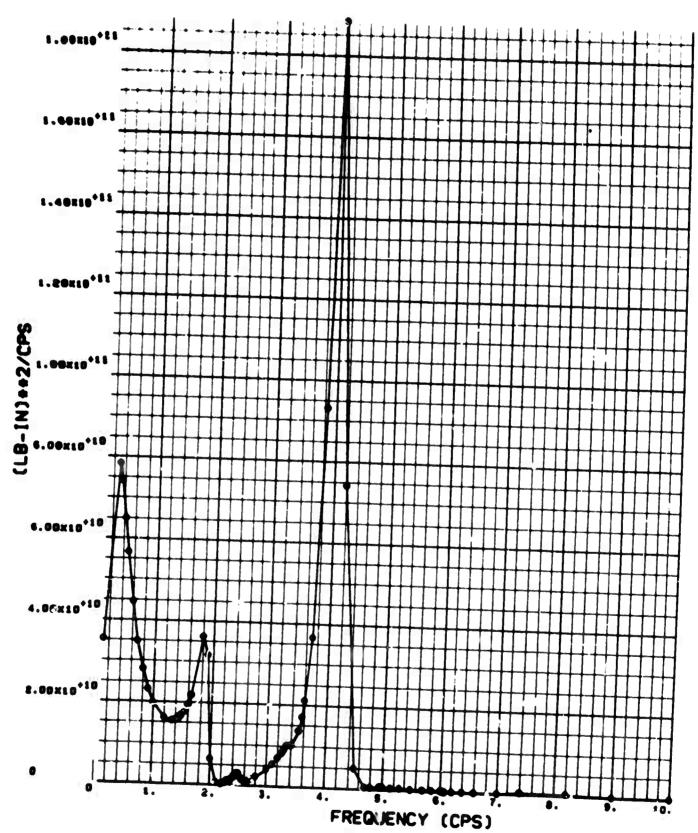
BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

10 CPS



BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

ANALYSIS CONDITION 4
WEIGHT CONDITION D

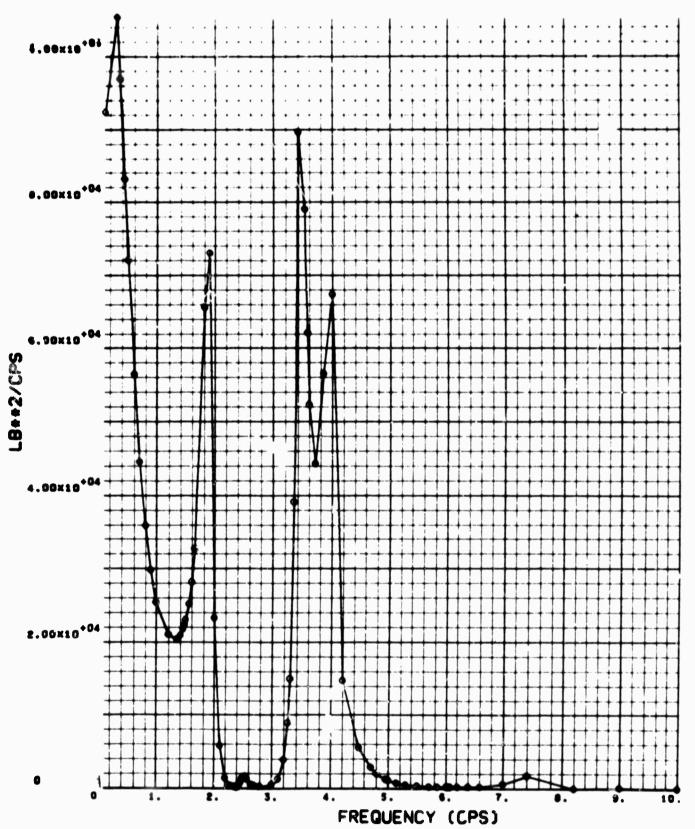
GROSS WEIGHT: ALTITUDE:

107, 260 LB 24, 000 FT

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT

MACH NUMBER:

0. 85



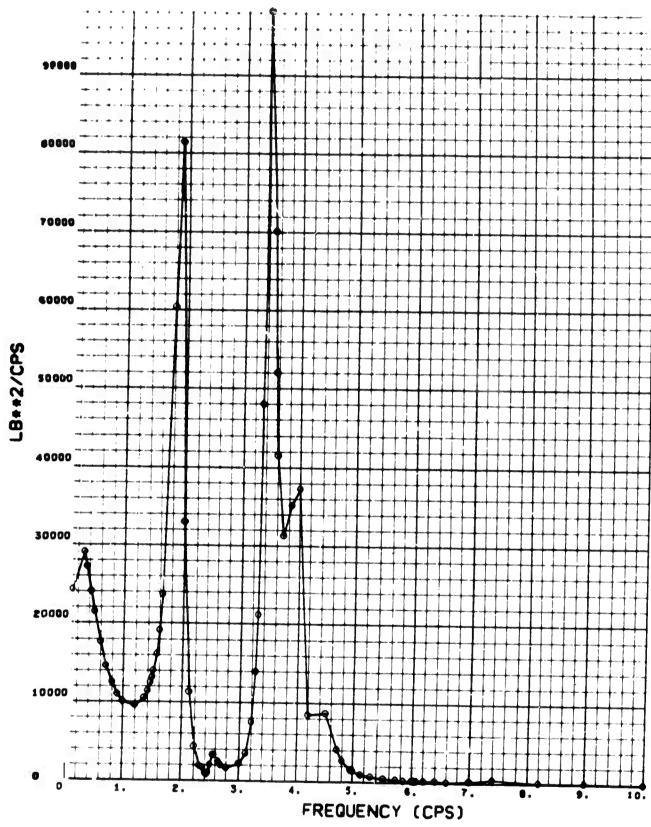
WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3, 000 FT

10 CPS



WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

ANALYSIS CONDITION 4 WEIGHT CONDITION D

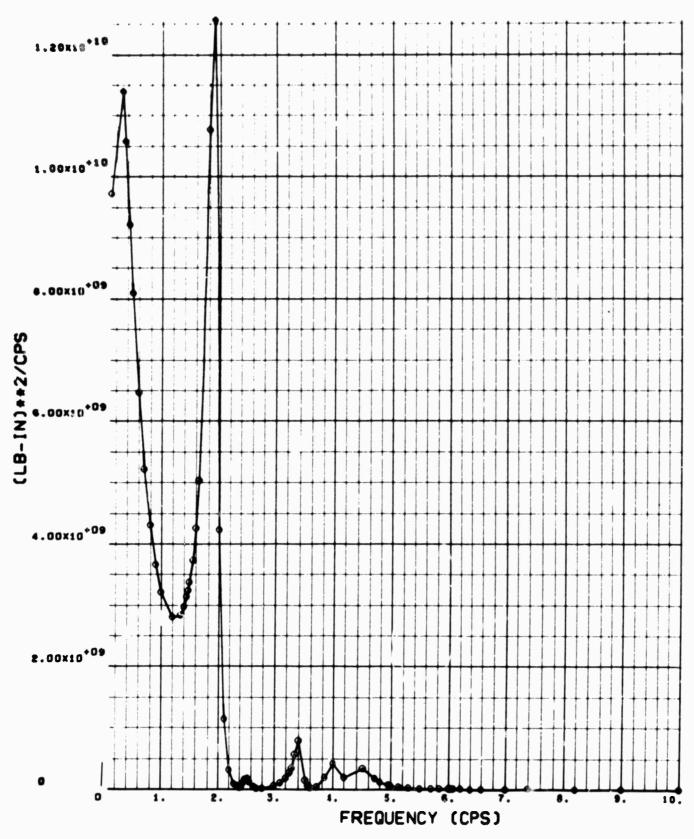
GROSS WEIGHT:

24,000 FT 0.85

107, 260 LB CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

ALTITUDE: MACH NUMBER:



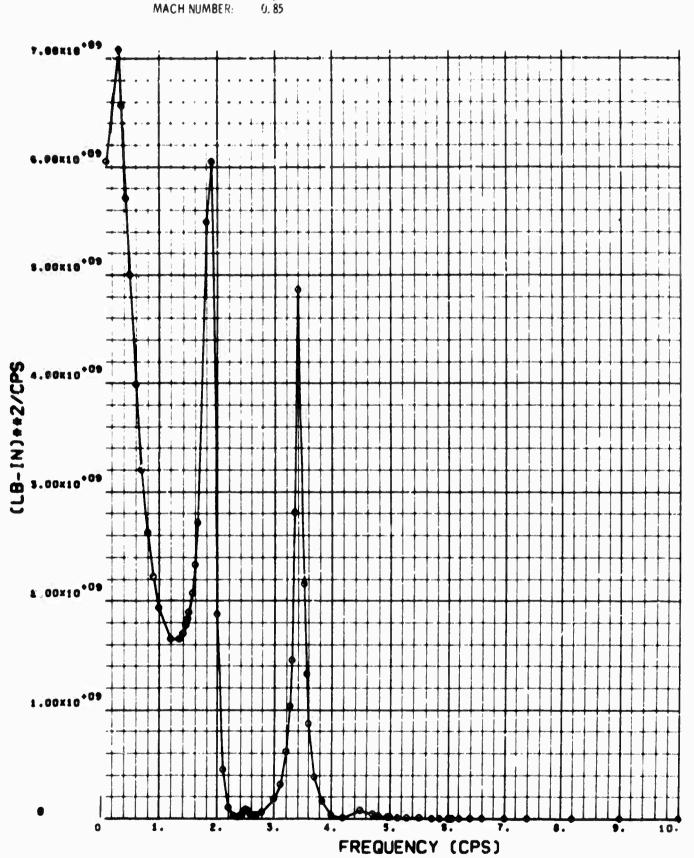
WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 4 WEIGHT CONDITION D

GROSS WEIGHT-ALTITUDE:

107, 260 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT



WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

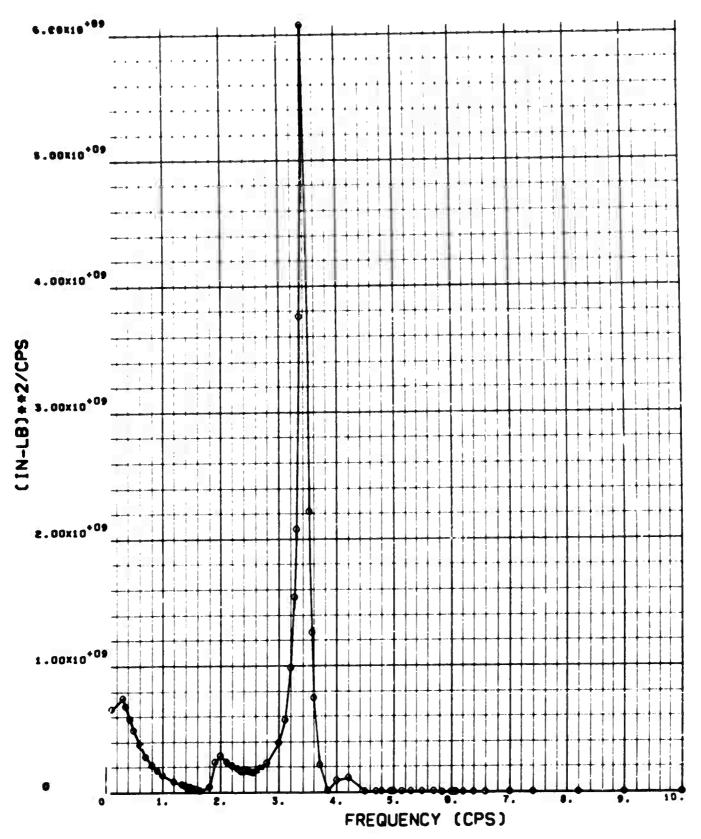
GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

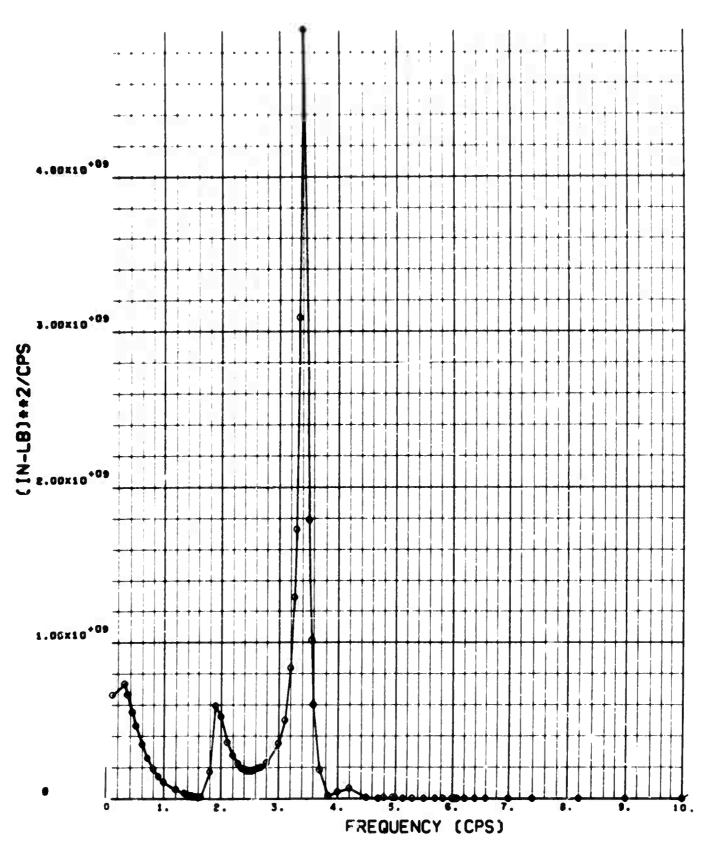
0.85



WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: 107, 260 LB CUTOFF FREQUENCY: 10 CPS
ALTITUDE: 24,000 FT SCALE OF TURBULENCE: 3,000 FT
MACH NUMBER: 0.85



WING TORQUE SPECTRUM, 40,06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE:

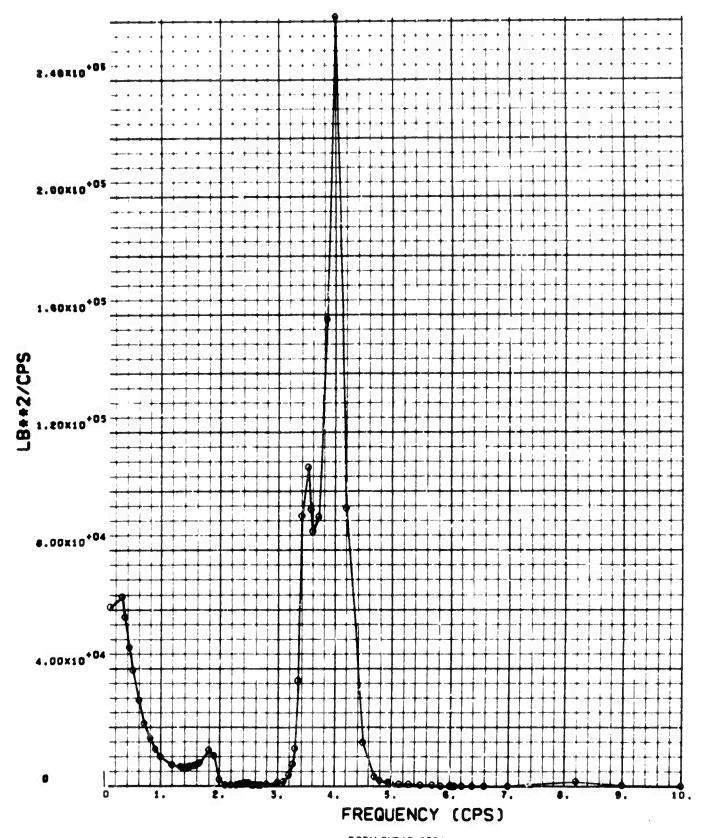
107,260 LB 24,000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

MACH NUMBER:

0.85

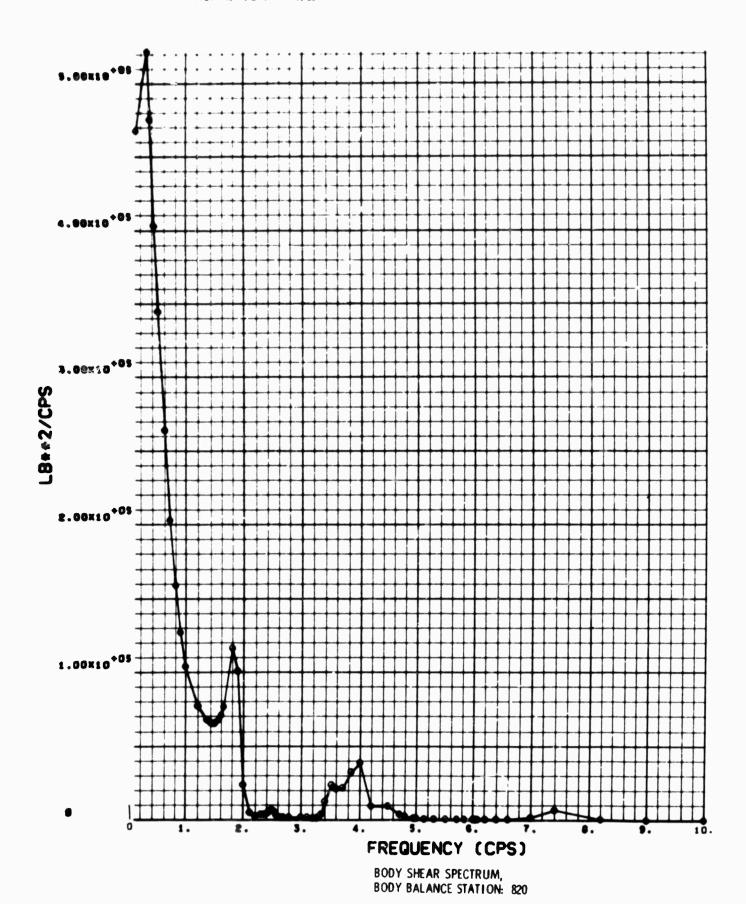


BODY SHEAR SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE:

107, 260 LB CUTOFF FREQUENCY: 10 CPS 24, 000 FT SCALE OF TURBULENCE: 3,000 FT

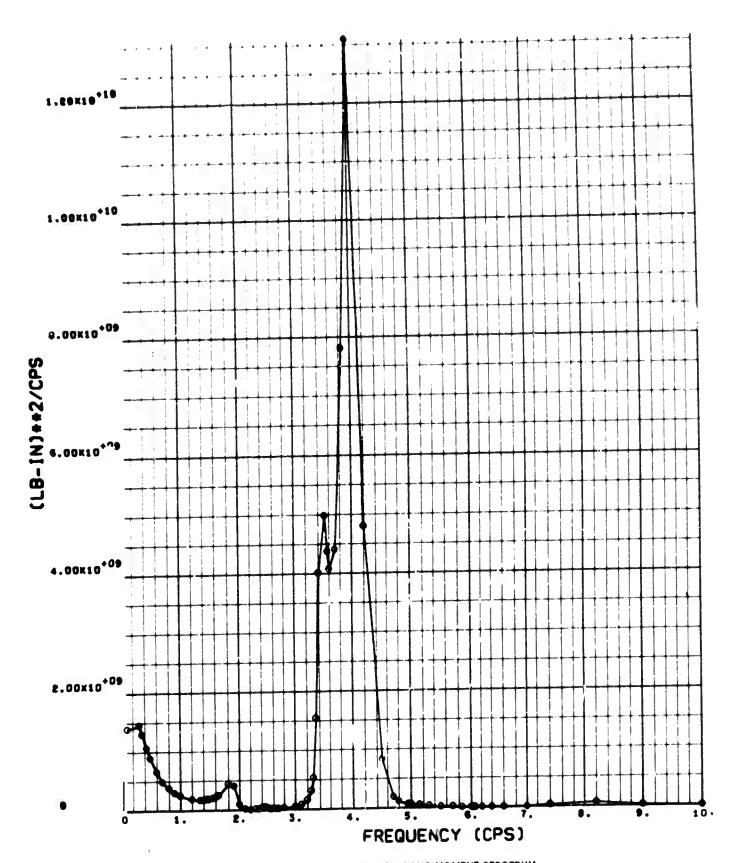
MACH NUMBER: 0.85



ANALYSIS CONDITION 4 WEIGHT CONDITION D

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 0.85

107, 260 LB CUTOFF FREQUENCY: 10 CPS 24,000 FT SCALE OF TURBULENCE: 3,000 FT



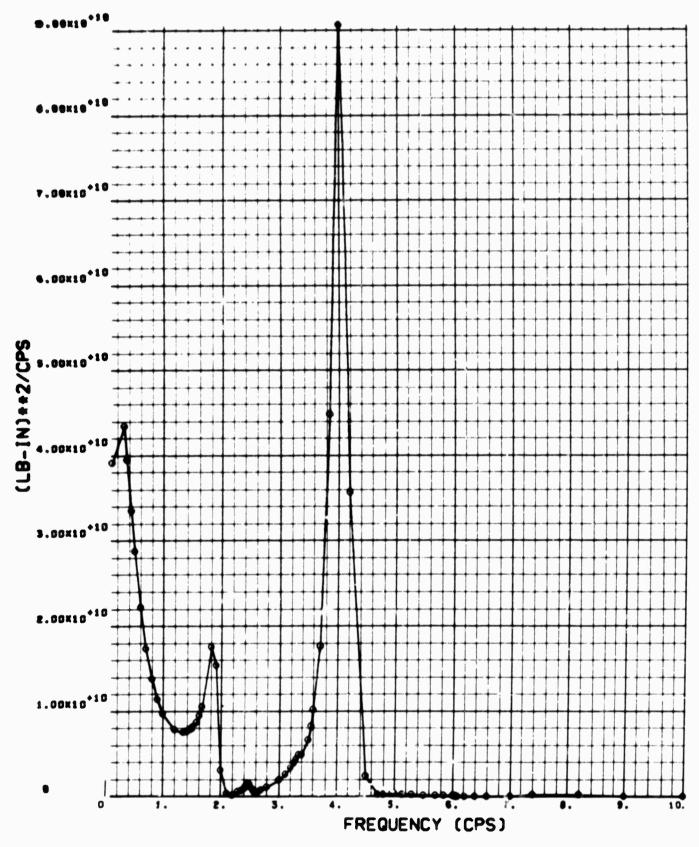
BODY BENDING MOMENT SPECTRUM BODY BALANCE STATION: 540

ANALYSIS C. NOITION 4 WEIGHT CONDITION D

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT



BODY BENDING MOMENT SPECTRUM,

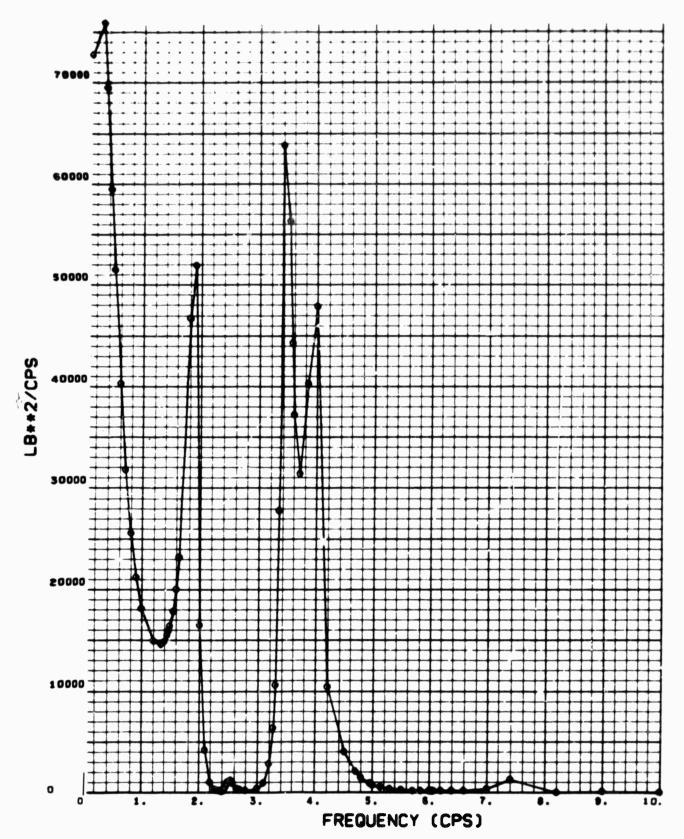
GROSS WEIGHT: ALTITUDE:

107, 260 LB 24,000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

10 CPS





WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 4 WEIGHT CONDITION D

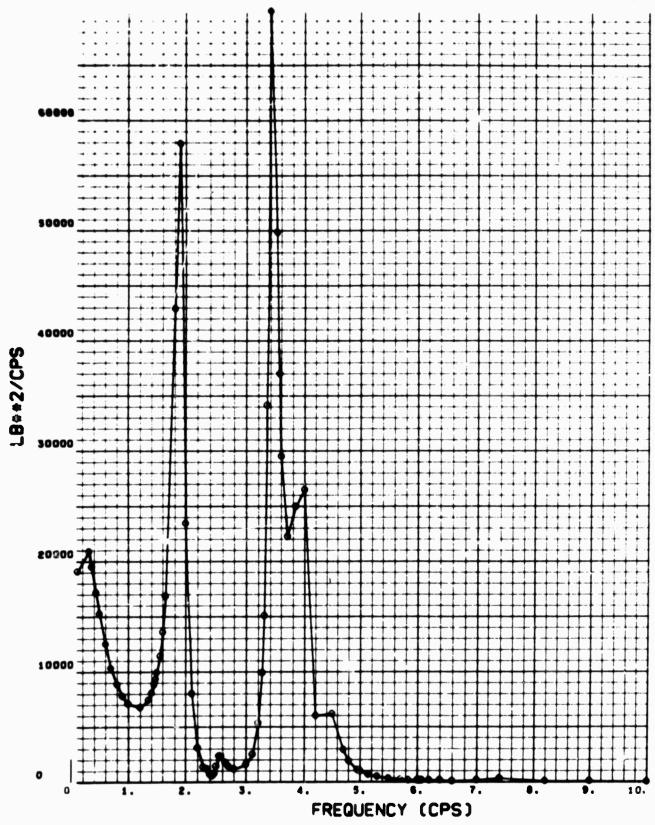
GROSS WEIGHT: ALTITUDE: MACH NUMBER:

FOR THE PROPERTY OF THE PROPER

107,260 LB 24,000 FT 0.85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

10 CPS



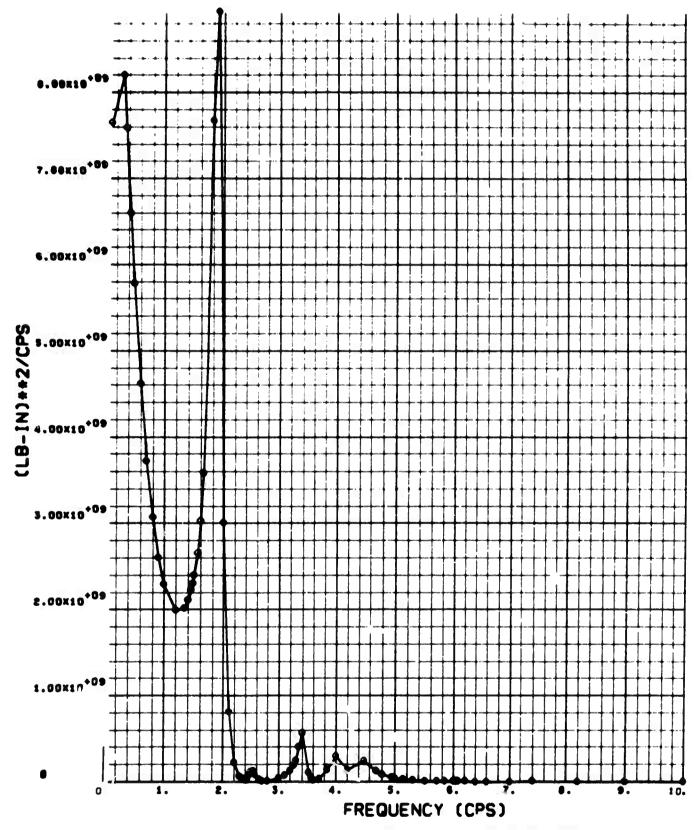
WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

107, 260 LB 24, 000 FT 0. 85

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

10 CPS



WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

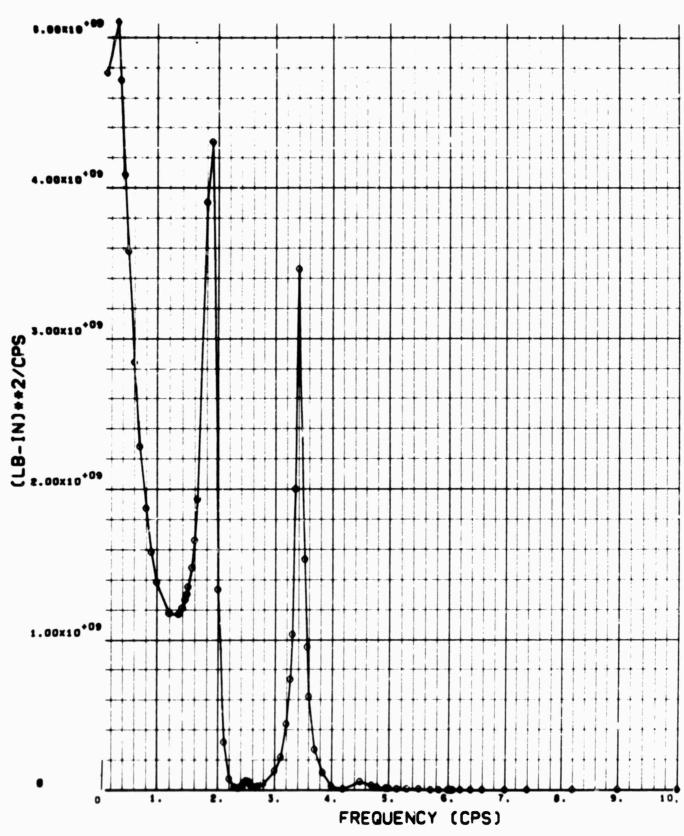
ANALYSIS CONDITION 4 WEIGHT CONDITION D

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

0.85

107, 260 LB CUTOFF FREQUENCY: SCALE OF TURBULENC SCALE OF TURBULENCE: 5,000 FT

10 CPS



WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

ANALYSIS CONDITION 4
WEIGHT CONDITION D

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 107,260 LB CUTOFF 24,000 FT SCALE 0 0.85

CUTOFF FREQUENCY: 10 CPS SCALE OF TUPBULENCE: 5,000 FT

5.00×10⁺⁰⁹ (IN-LB) **2/CPS 1.00×10⁺⁰⁹ FREQUENCY (CPS)

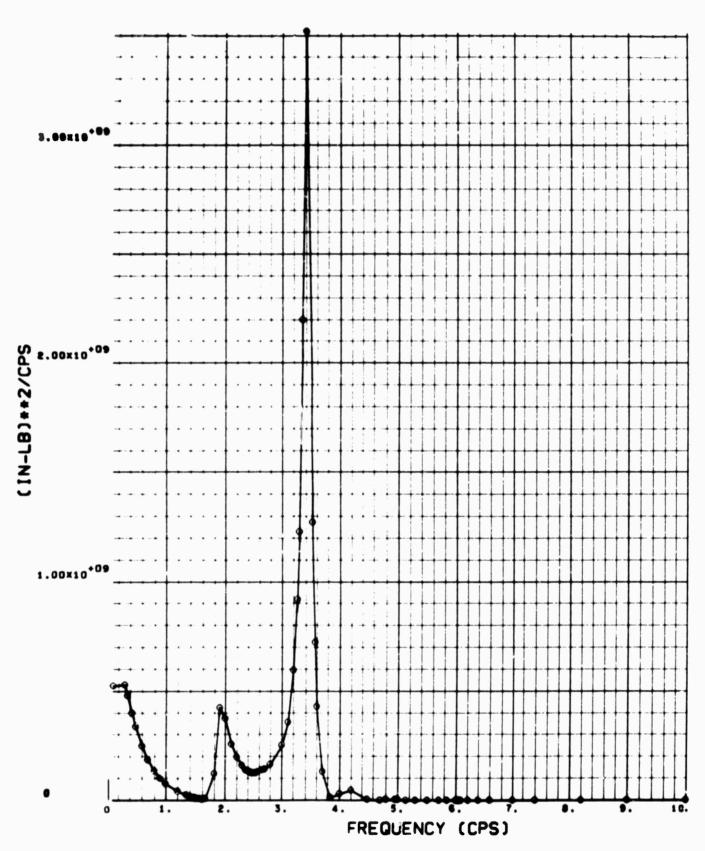
WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE:

POST - POLITICIONEM TRADITO POPEN RETRIENTANCIMINA MARRIEN

107, 260 LB 24, 000 FT 0. 85 CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT

MACH NUMBER: 0.



WING TORQUE SPECTRUM, 40, 06 PERCENT SEMISPAN

GROSS WEIGHT ALTITUDE:

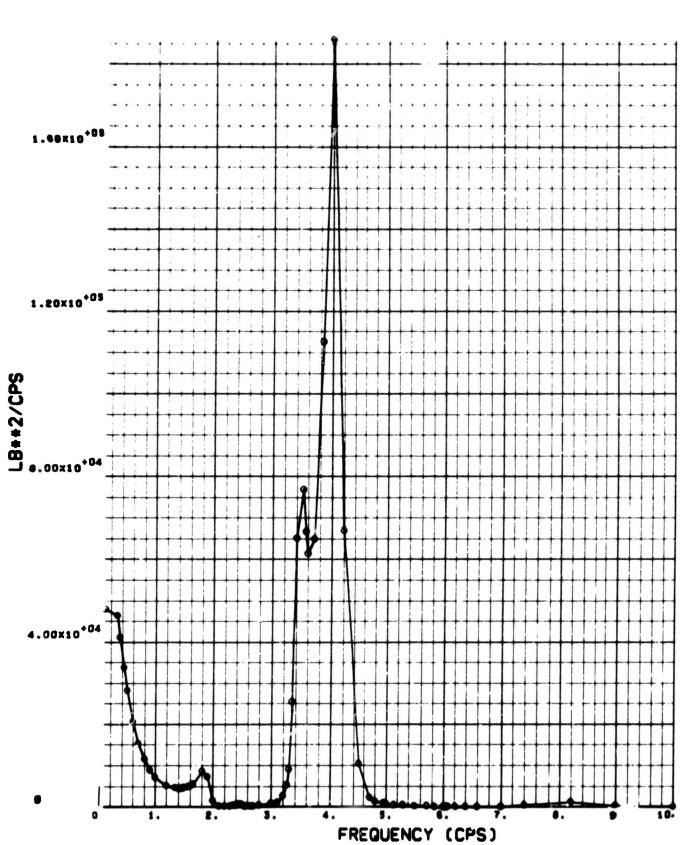
107,260 LB 24,000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 5,000 FT

10 CPS

MACH NUMBER:

0.85



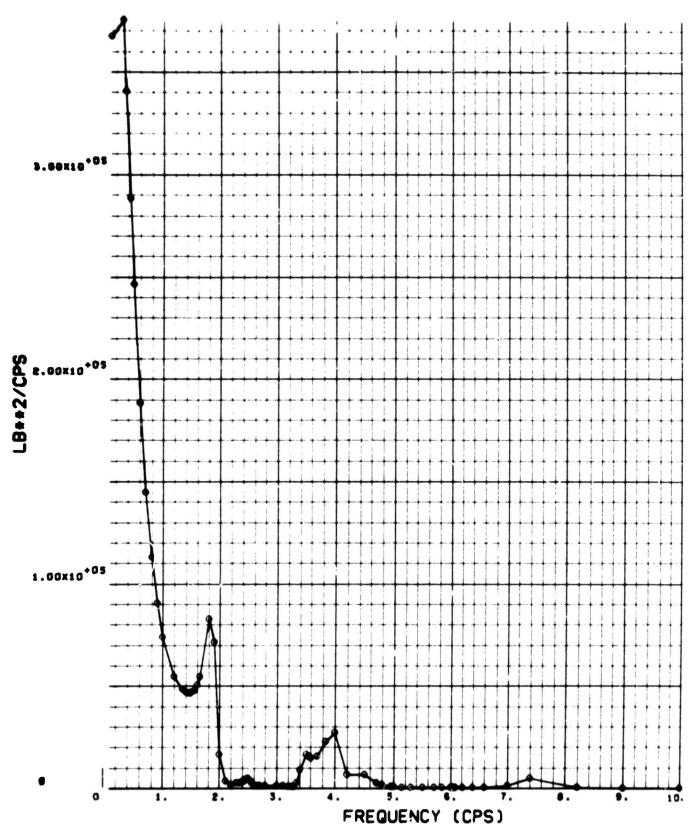
BODY SHEAR SPECTRUM, BODY BALANCE STATION: 540

ANALYSIS CONDITION 4 WEIGHT CONDITION D

GROSS WEIGHT: ALTITUDE: MACH NUMBER

107, 260 LB CUTOFF FREQUENCY: 24, 000 FT SCALE OF TURBULENC 0, 85 SCALE OF TURBULENCE: 5,000 FT

10 CPS

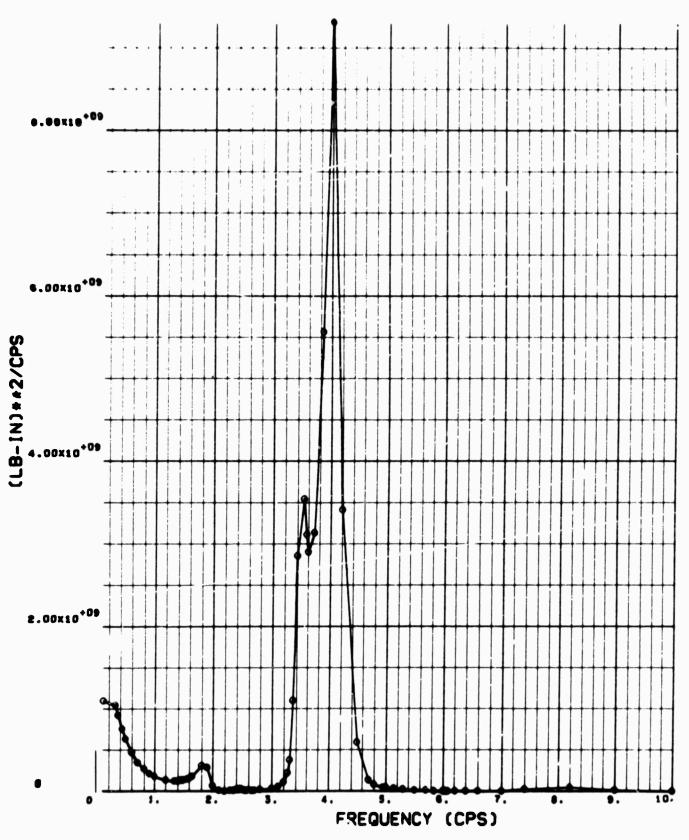


BODY SHEAR SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT:

107, 260 LB CUTOFF FREQUENCY: 10 CPS 24, 000 FT SCALE OF TURBULENCE: 5, 000 FT 0. 85

ALTITUDE: MACH NUMBER:



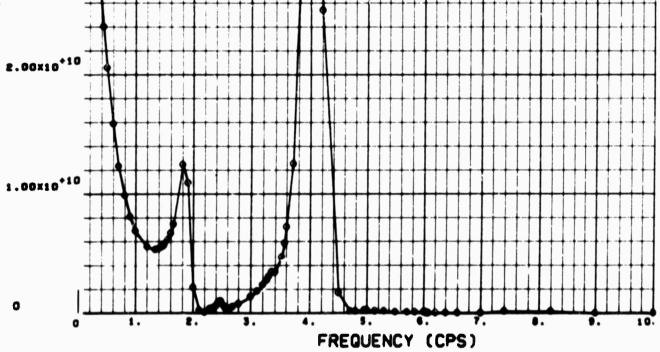
BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE:

107, 260 LB CUTOFF FREQUENCY: 24, 000 FT SC ALE OF TURBULENC SCALE OF TURBULENCE: 5,000 FT

10 CES

MACH NUMBER: 0.85 8.00×10⁺¹⁰ 4.00x10⁺¹⁰ (LB-IN) 3+2/CPS



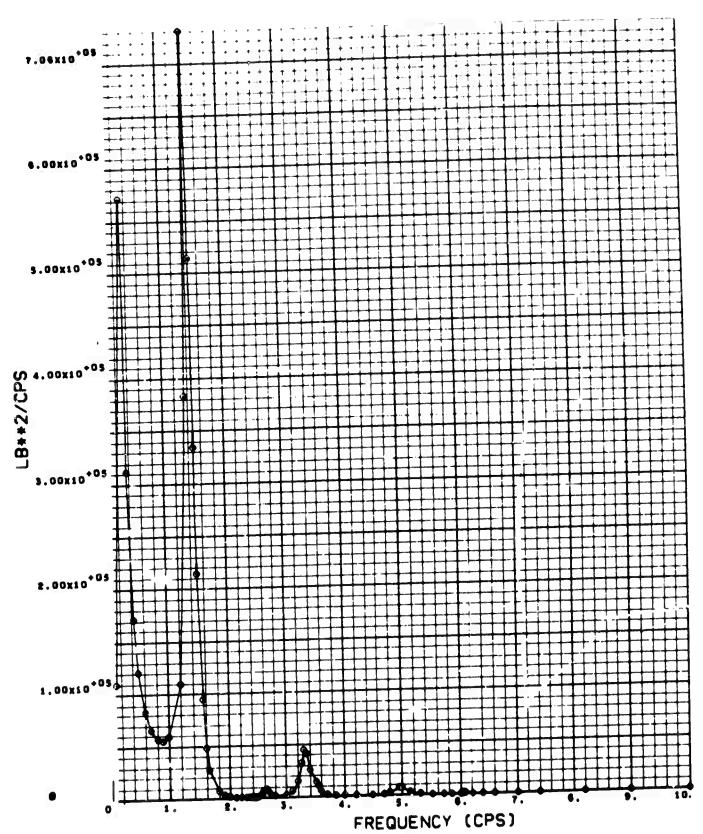
BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0.50

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

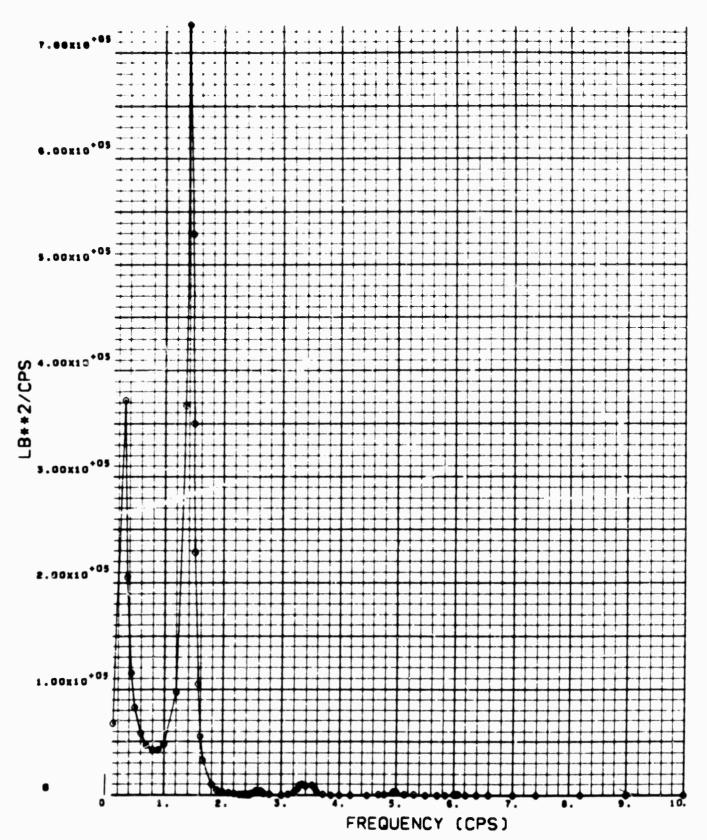
10 CPS



WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

ANALYSIS CONDITION 5
...EIGHT CONDITION 4

GROSS WEIGHT: 297,000 LB CUTOFF FREQUENCY: 10 CPS ALTITUDE: 24,000 FT SCALE OF TURBULENCE: 1,000 FT MACH NUMBER: 0.50



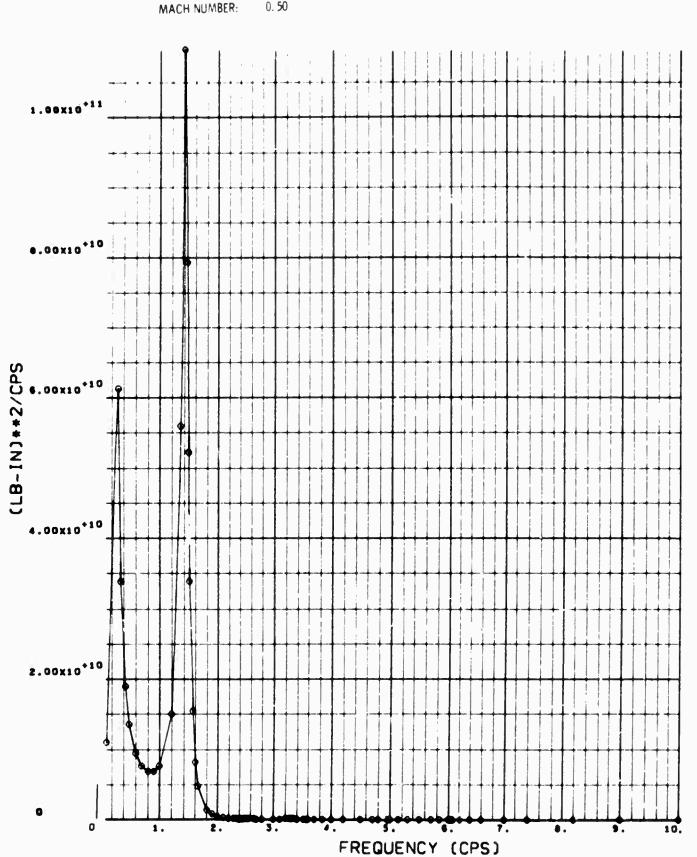
WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE:

297, 000 LB 24, 000 FT 0.50

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

10 CPS



WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

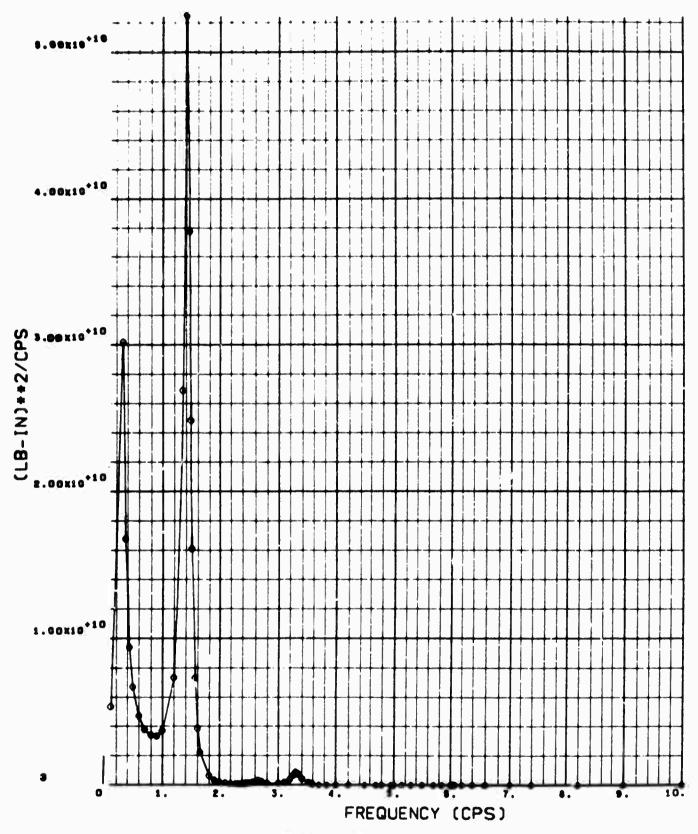
GROSS WEIGHT: ALTITUDE:

297, 000 LB 24,000 FT 0,50

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

10 CPS

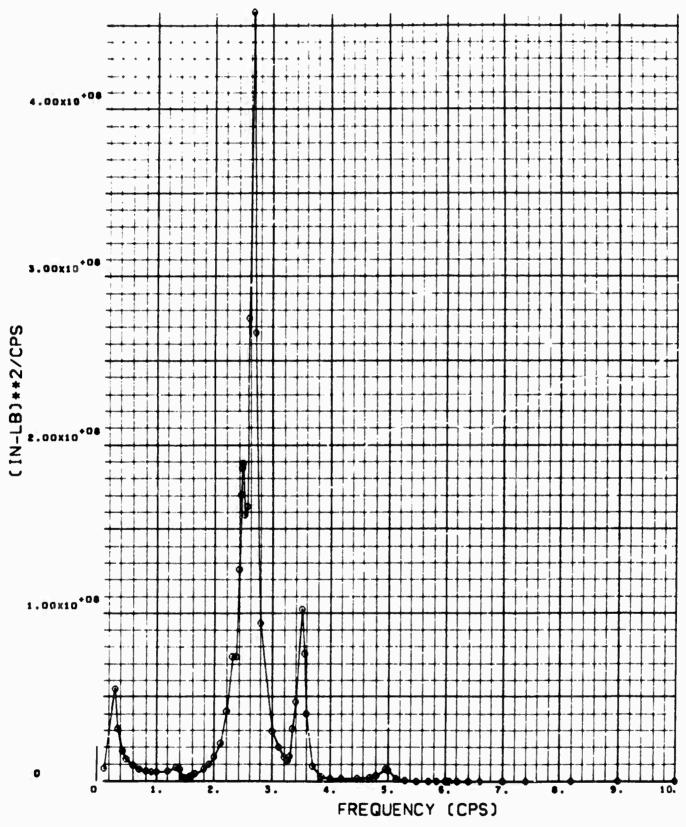
MACH NUMBER:



WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT 0, 50 CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

10 CPS



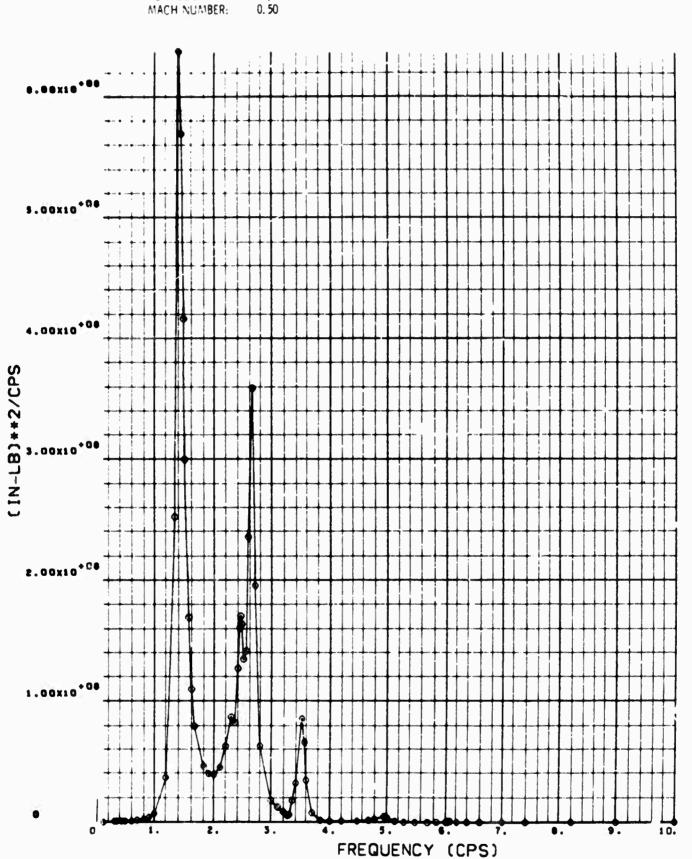
WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

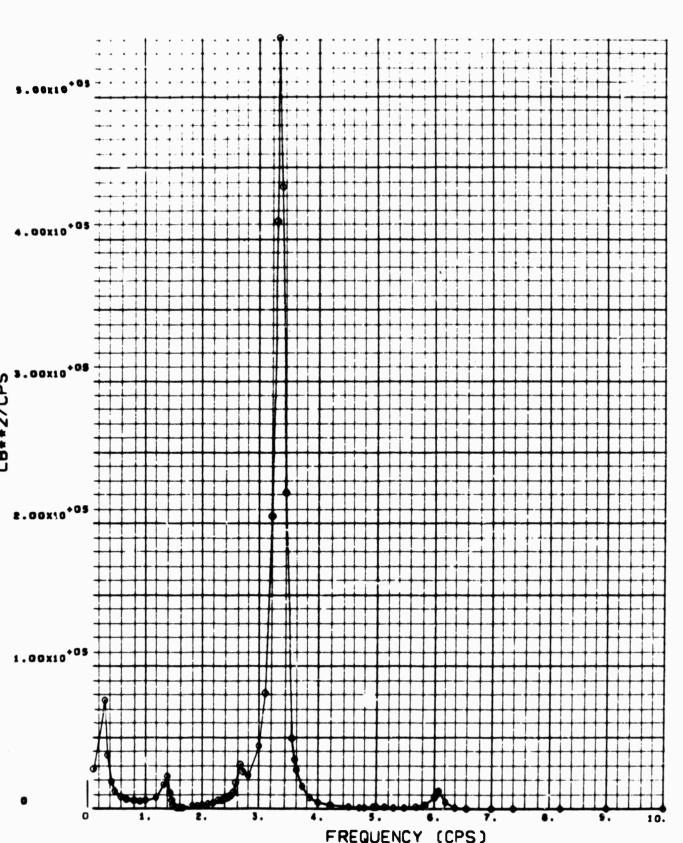
10 CPS



GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0, 50

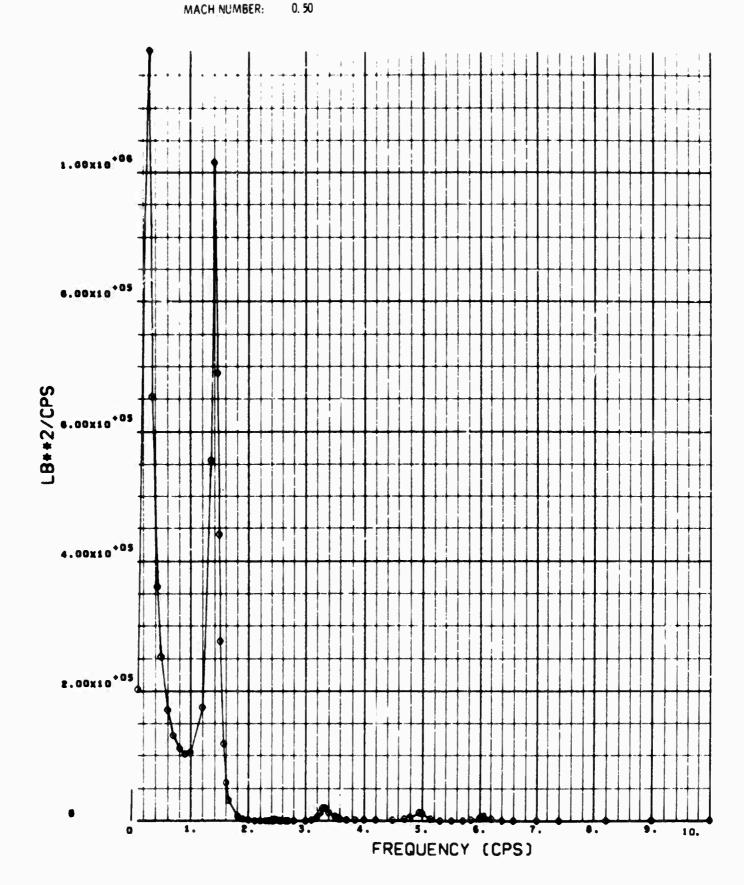
CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT



BODY SHEAR SPECTRUM, **BODY BALANCE STATION: 540**

GROSS WEIGHT: ALTITUDE:

297,000 LB 24,000 FT CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

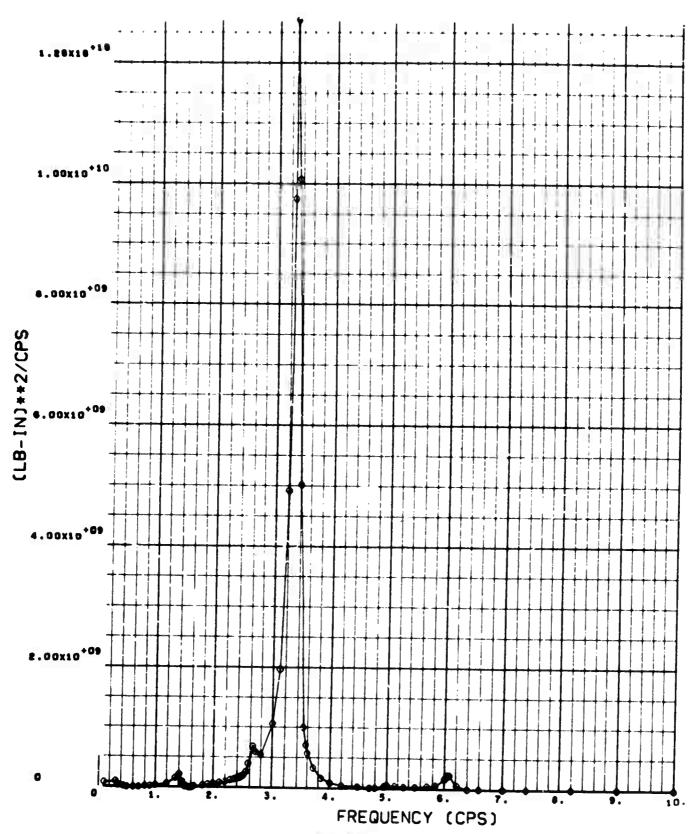


BODY SHEAR SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT. ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0, 50

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 1,000 FT

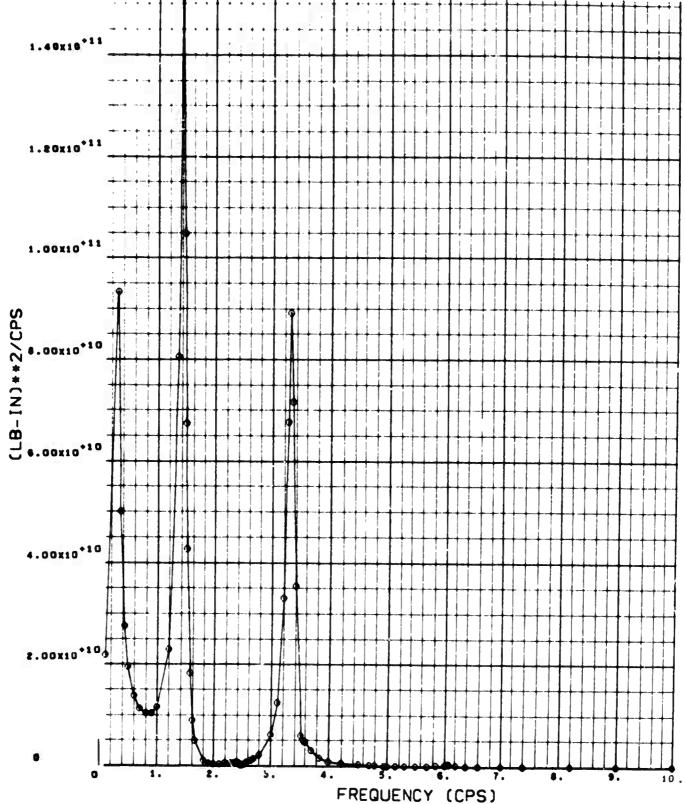


BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 1,000 FT

10 CPS

GROSS MEIGHT 297,000 LB ALTITUDE 24,000 FT MACH NUMBER: 0.50



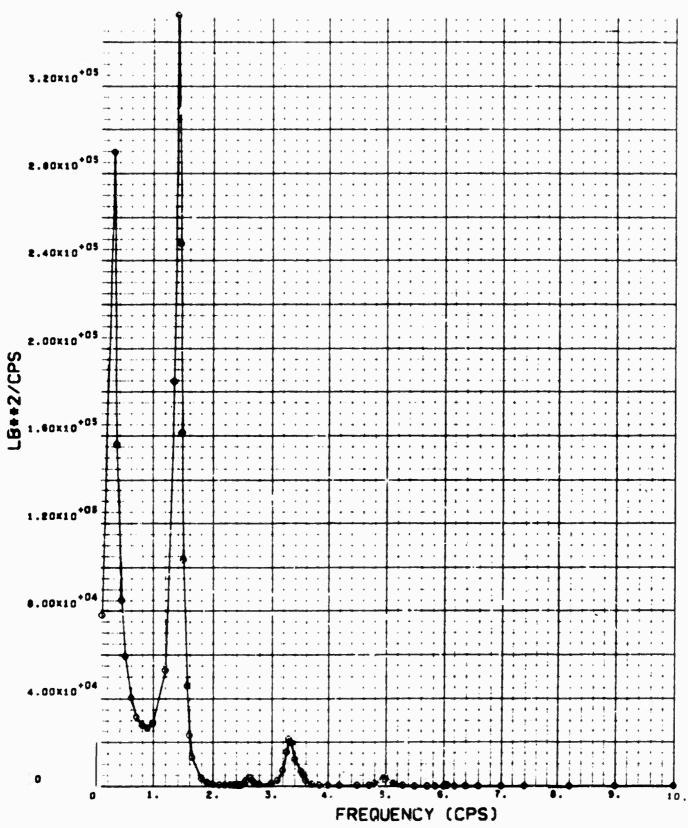
BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0.50

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS



WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

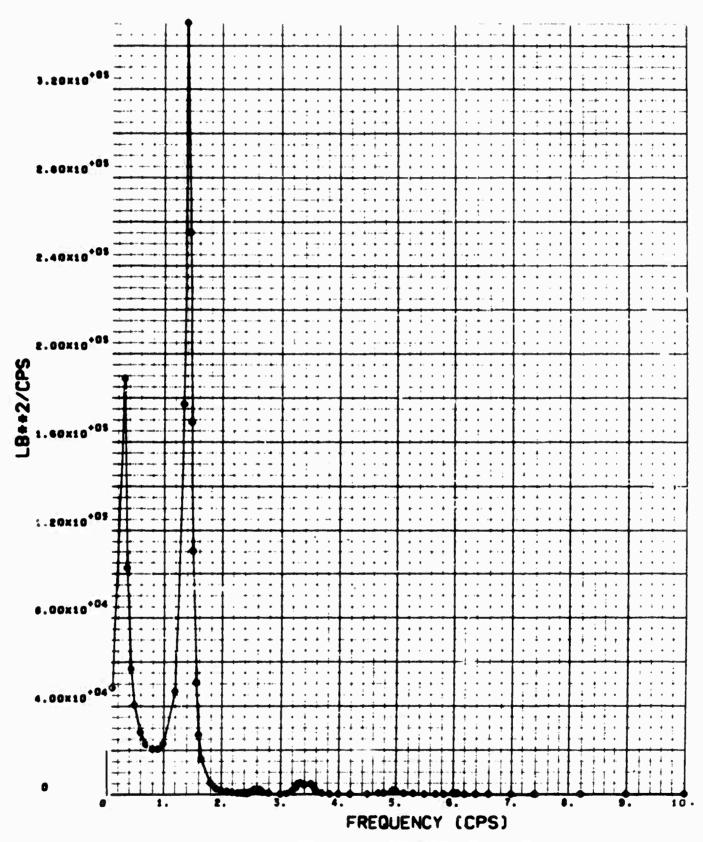
ANALYSIS CONDITION 5

WEIGHT CONDITION A

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

CUTOFF FREQUENCY: 297, 000 LB 24,000 FT 0.50

10 CPS SCALE OF TURBULENCE: 3,000 FT

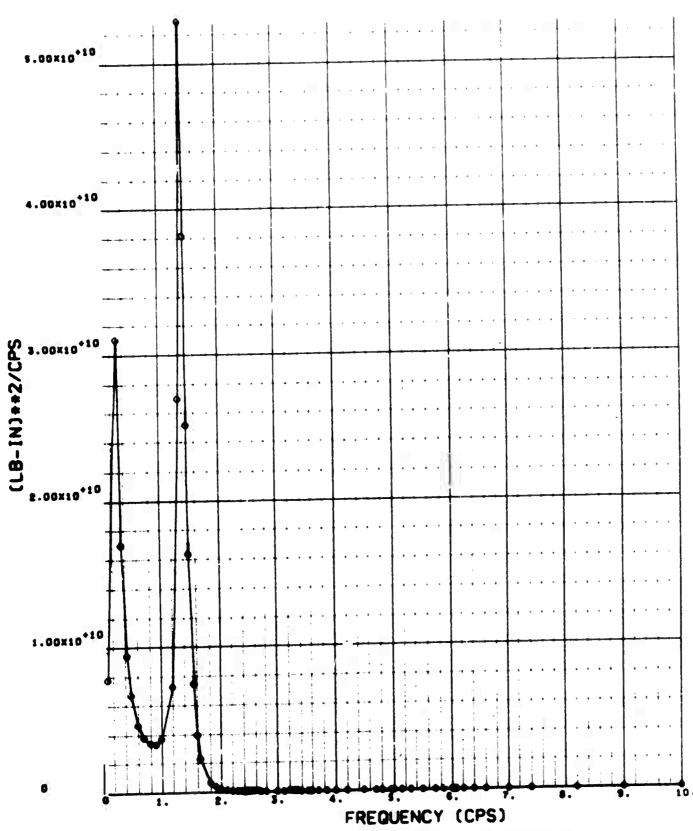


WING SHEAR SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0. 50

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT



WING BENDING MOMENT SPECTRUM, 27 PERCENT SEMISPAN

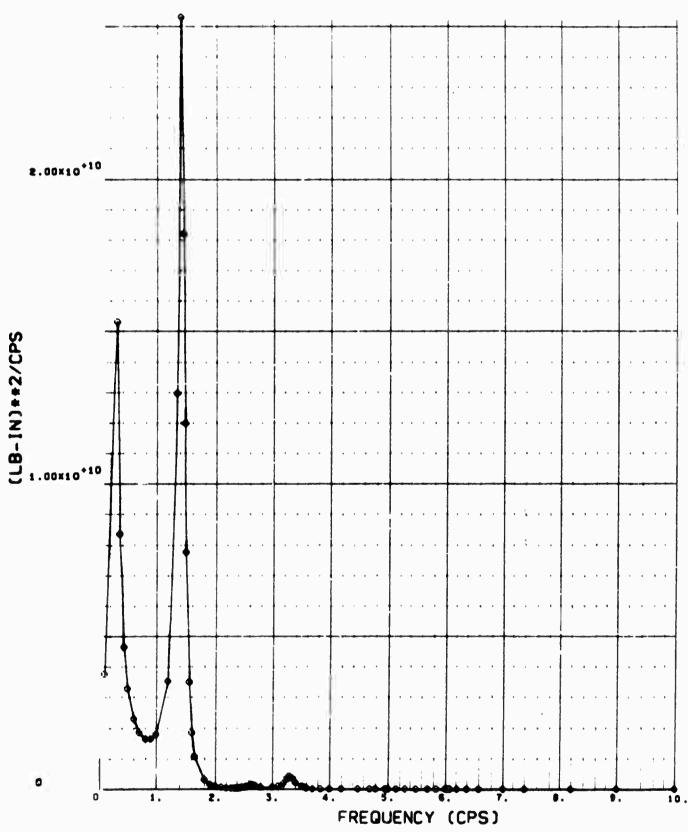
ANALYSIS CONDITION 5

WEIGHT CONDITION A

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB CUTOFF FREQUENCY: 24,000 FT SCALE OF TURBULENCE: 3,000 FT 0.50

10 CPS



WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

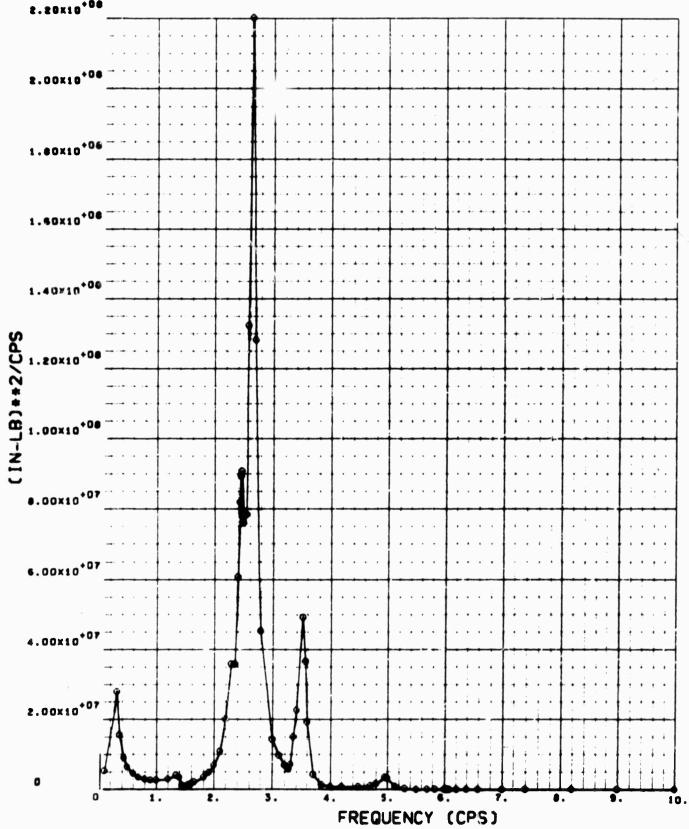
GROSS WEIGHT:

297, 000 LB 24, 000 FT

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

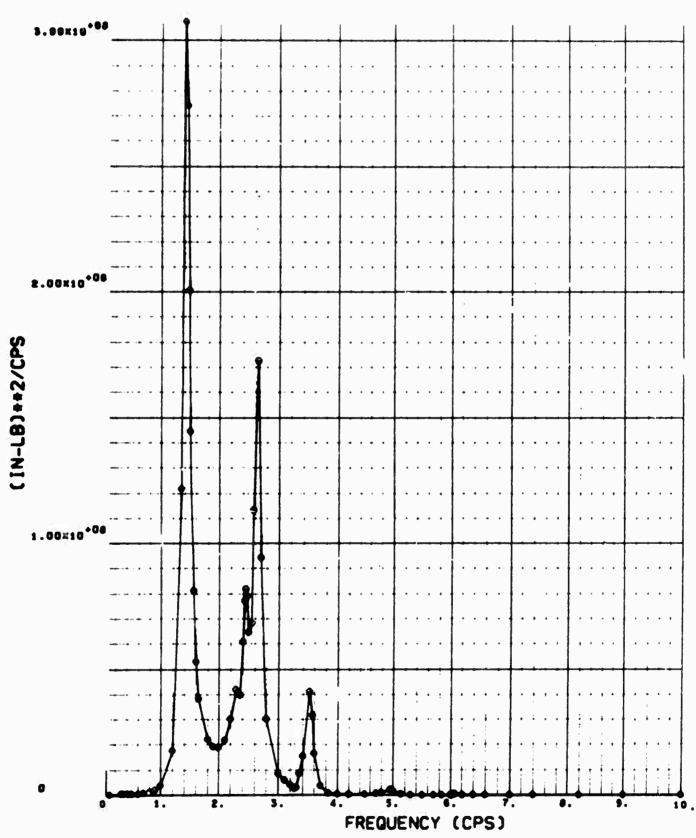
ALTITUDE: MACH NUMBER: 0.50



WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT 0. 50 CUTOFF FREQUENCY: SCALE OF TURBULENCE:

10 CPS 3, 000 FT



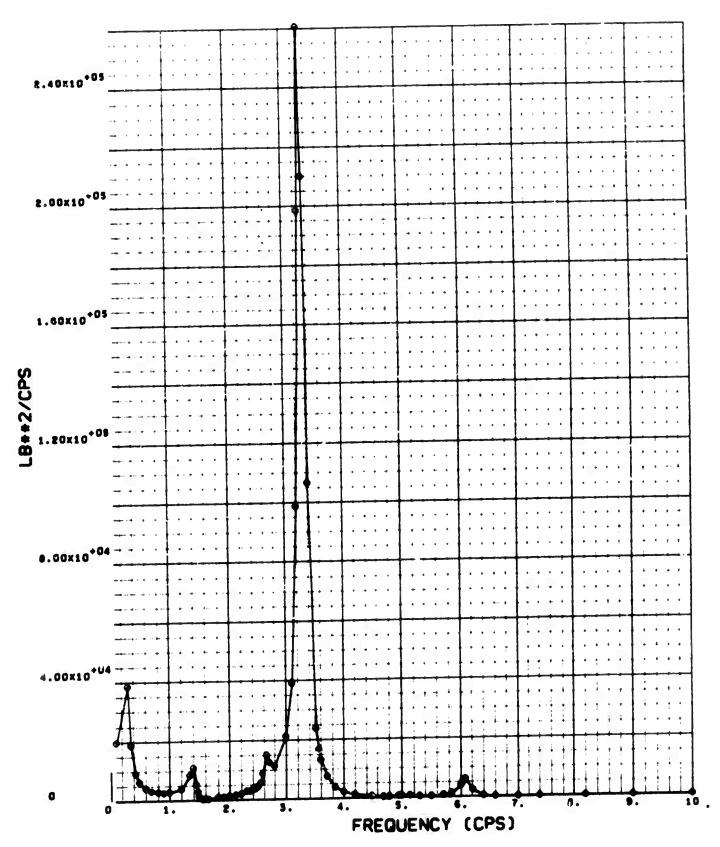
WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

ANALYSIS CONDITION 5

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

WEIGHT CONDITION A ,000 LB CUTOFF FREQUENCY: 297, 000 LB SCALE OF TURBULENCE: 3,000 FT 24,000 FT 0.50

10 CPS

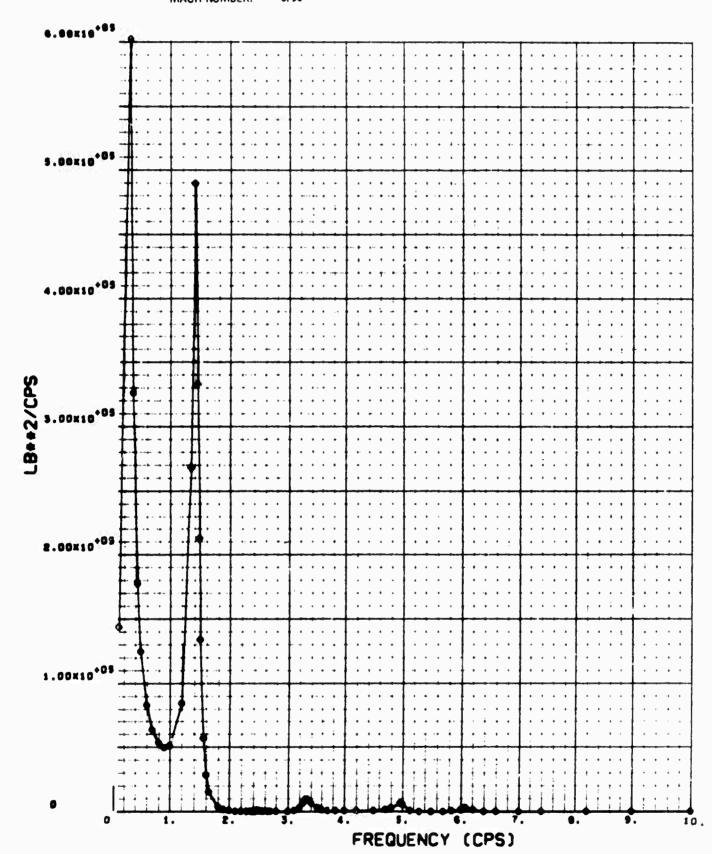


BODY SHEAR SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297,000 LB 24, 000 FT 0.50

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

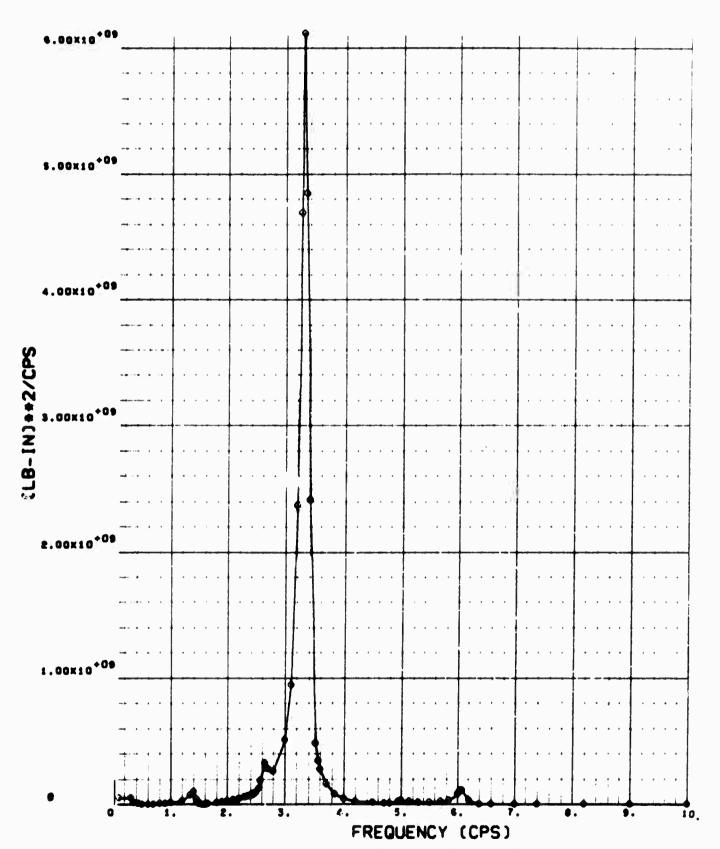


BODY SHEAR SPECTRUM, **BODY BALANCE STATION: 820**

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0. 50

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 3,000 FT

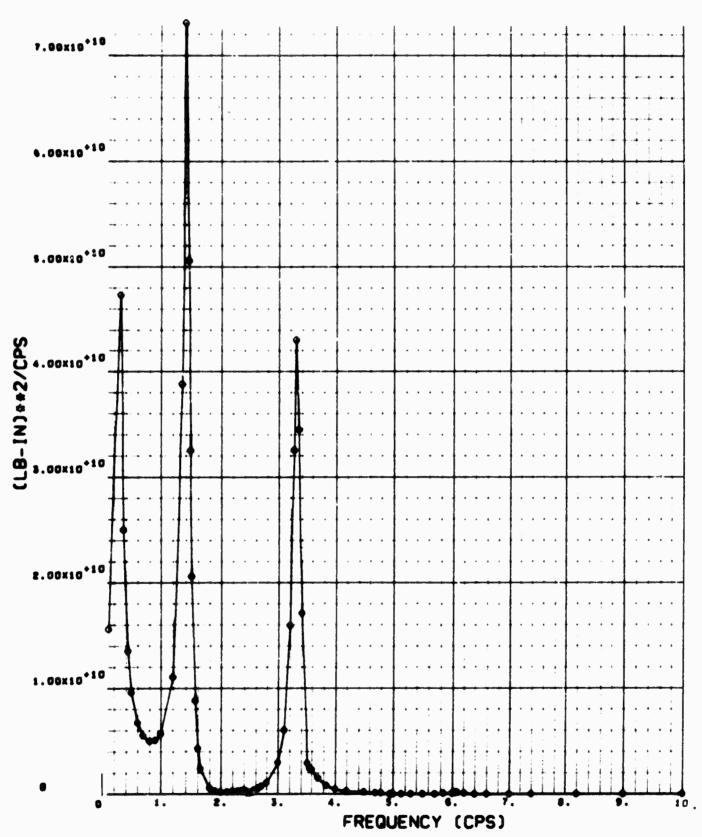


BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24,000 FT 0.50

CUTOFF FREQUENCY: SCALE OF TURBULENCE: 3,000 FT

10 CPS

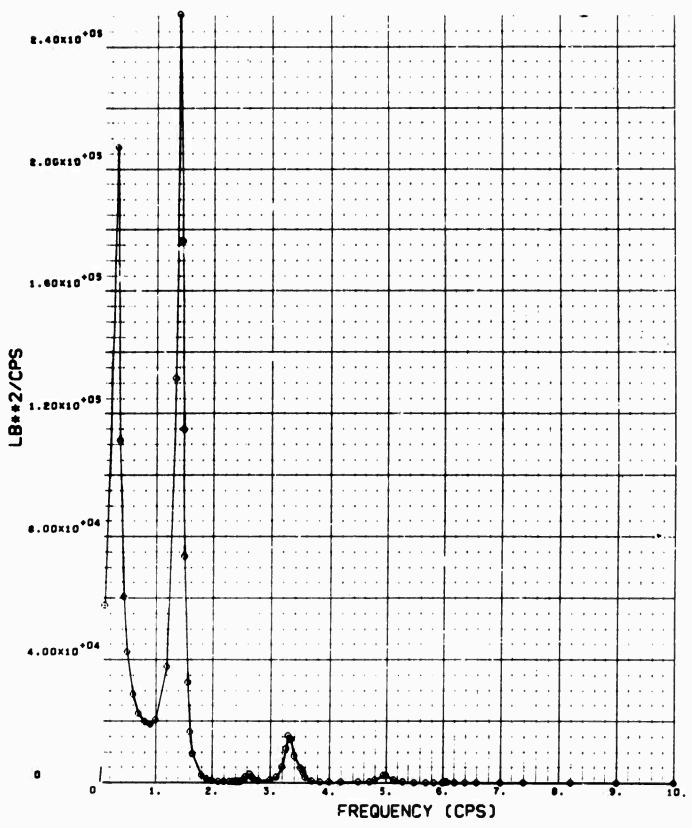


BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT: . ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0.50

10 CPS **CUTOFF FREQUENCY:** SCALE OF TURBULENCE. 5,000 FT



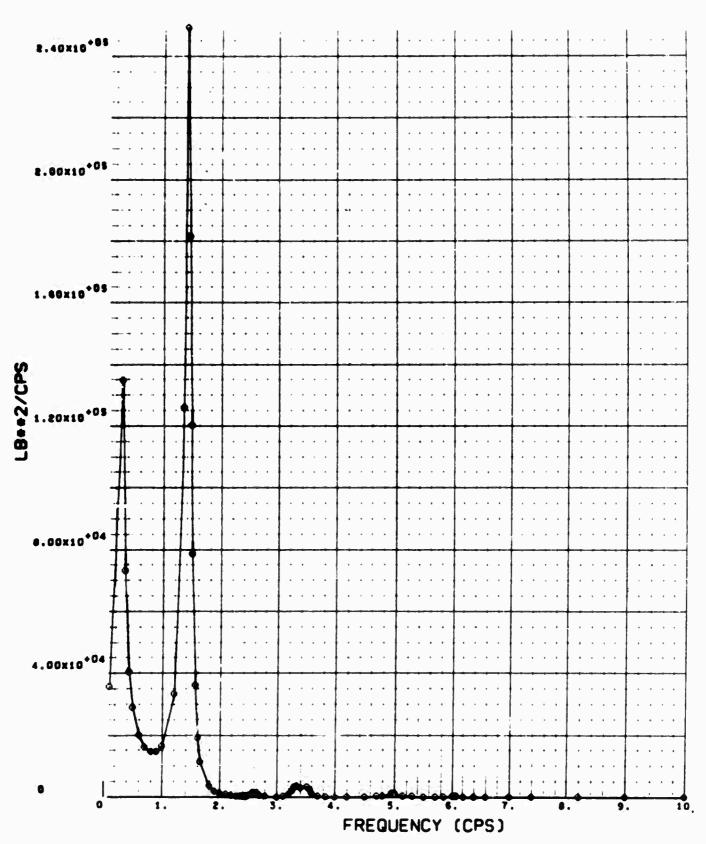
WING SHEAR SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT

0.50

CUTOFF FREQUENCY: SCALE OF TURBULENCE:

10 CPS 5, 000 FT

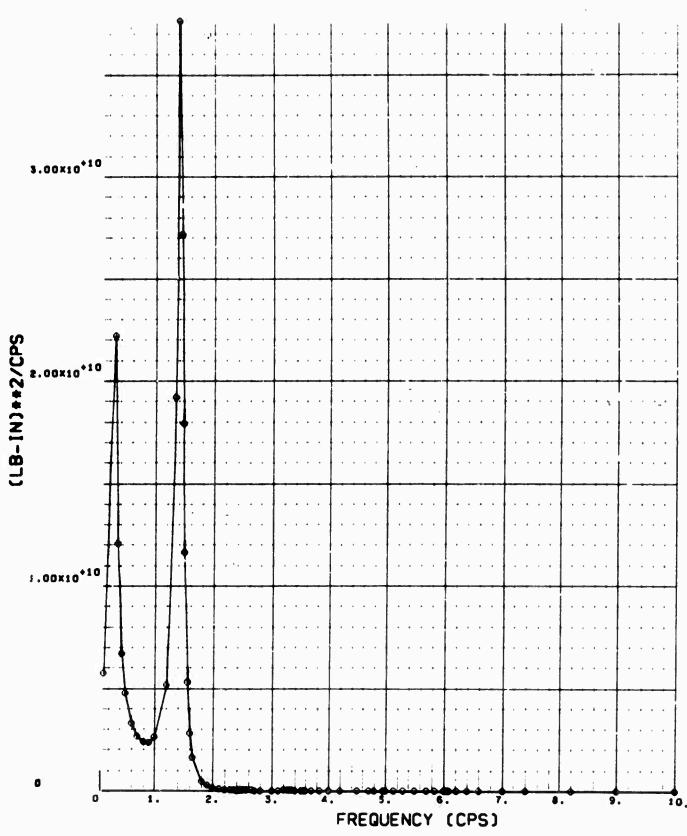


WING SHEAR OPECTRUM, 40.06 PERCENT SEMISPAN

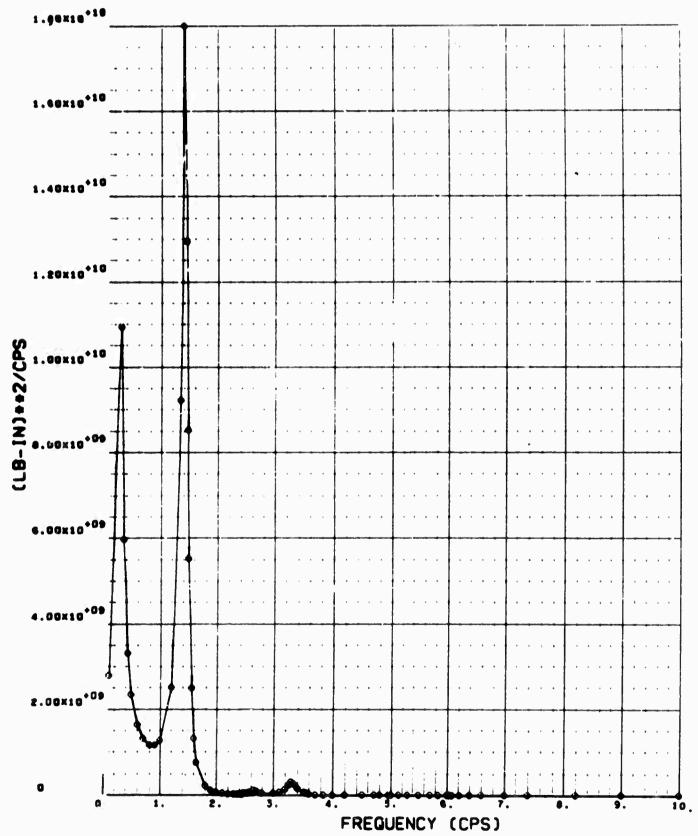
GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297,000 LB 24,000 FT 0.50

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT



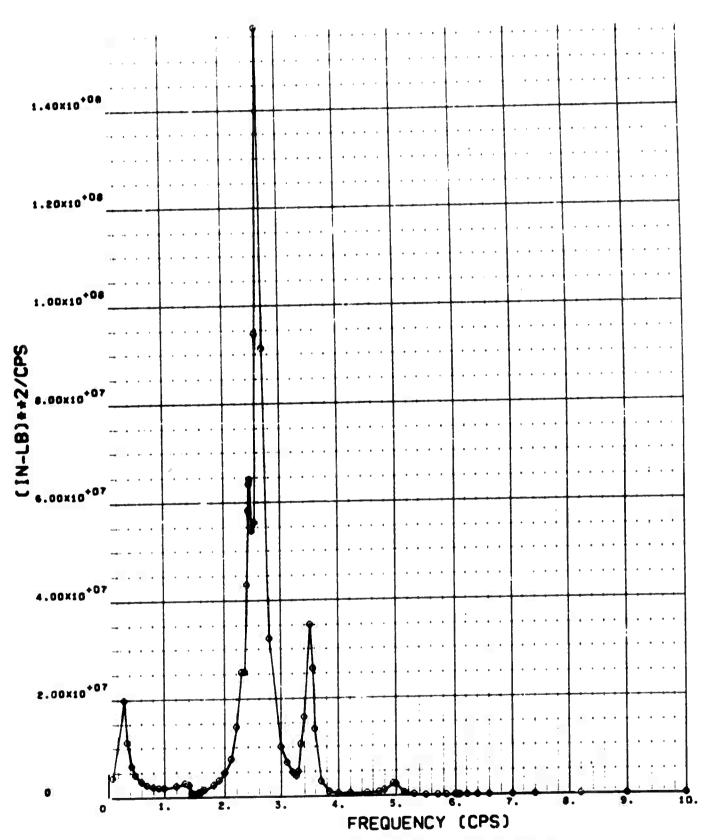
GROSS WEIGHT: 297, 000 LB CUTOFF FREQUENCY: 10 CPS ALTITUDE: 24, 000 FT SCALE OF TURBULENCE: 5, 000 FT MACH NUMBER: 0.50



WING BENDING MOMENT SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT 0, 50 CUTOFF FREQUENCY: SCALE OF TURBULENCE:

10 CPS 5, 000 FT



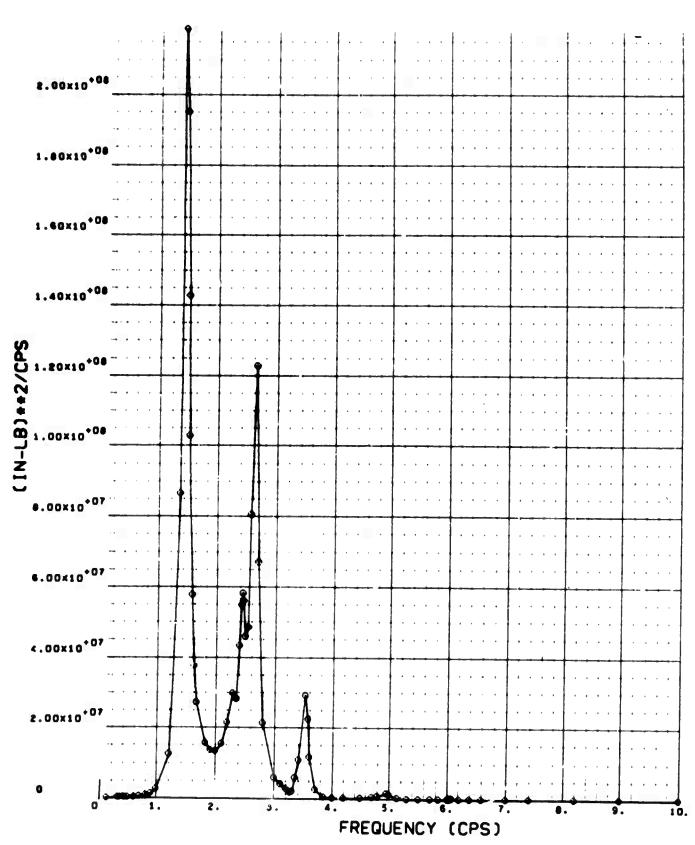
WING TORQUE SPECTRUM, 27 PERCENT SEMISPAN

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT

0.50

CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT



WING TORQUE SPECTRUM, 40.06 PERCENT SEMISPAN

GROSS WEIGHT:, ALTITUDE:

297, 000 LB 24, 000 FT

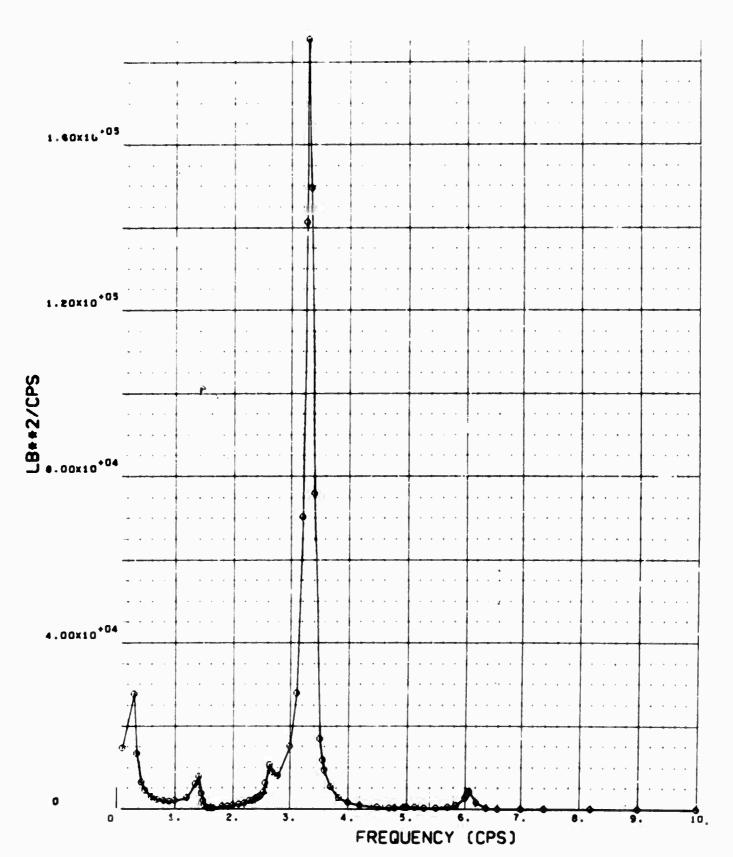
CUTOFF FREQUENCY:

10 CPS

MACH NUMBER:

0.50

SCALE OF TURBULENCE: 5, 400 FT

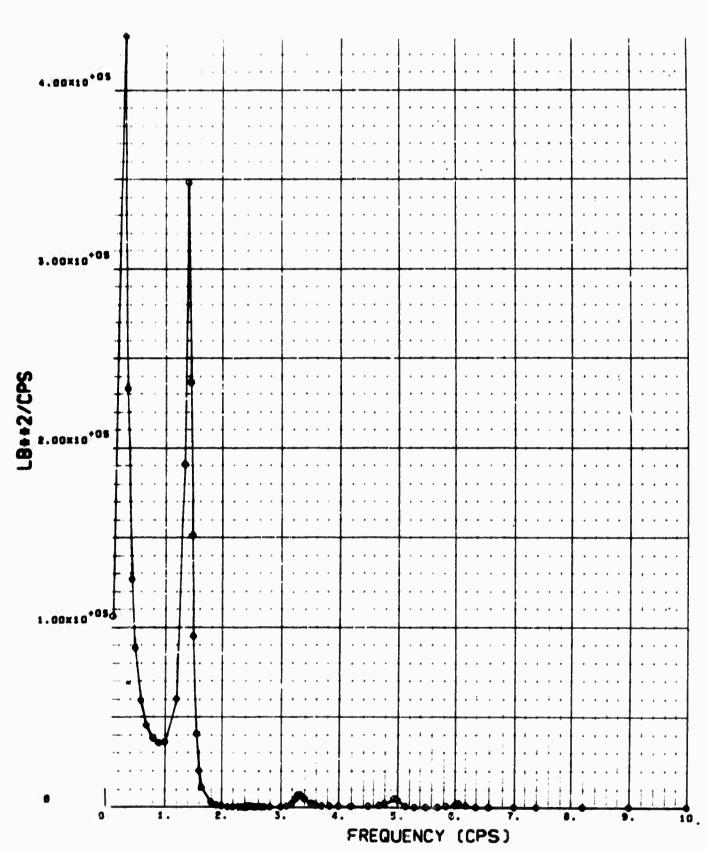


BODY SHEAR SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT:
TUDE:
H NUMBER:

297, 000 LB 24, 000 FT 0. 50 CUTOFF FREQUENCY: SCALE OF TURBULENCE:

10 CPS 5, 000 FT

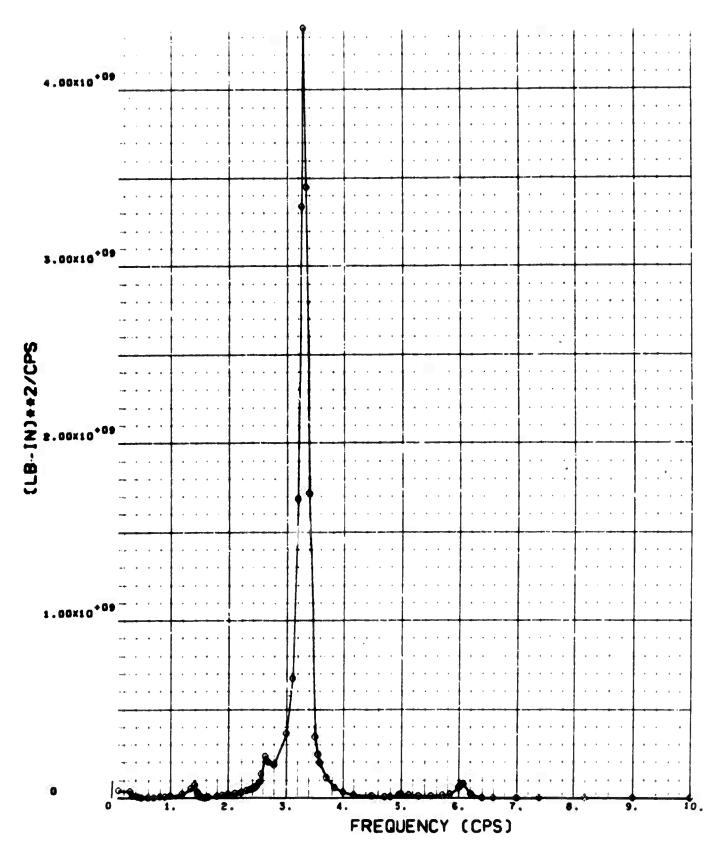


BODY SHEAR SPECTRUM, BODY BALANCE STATION: 820

GROSS WEIGHT: ALTITUDE: MACH NUMBER:

297, 000 LB 24, 000 FT 0.50

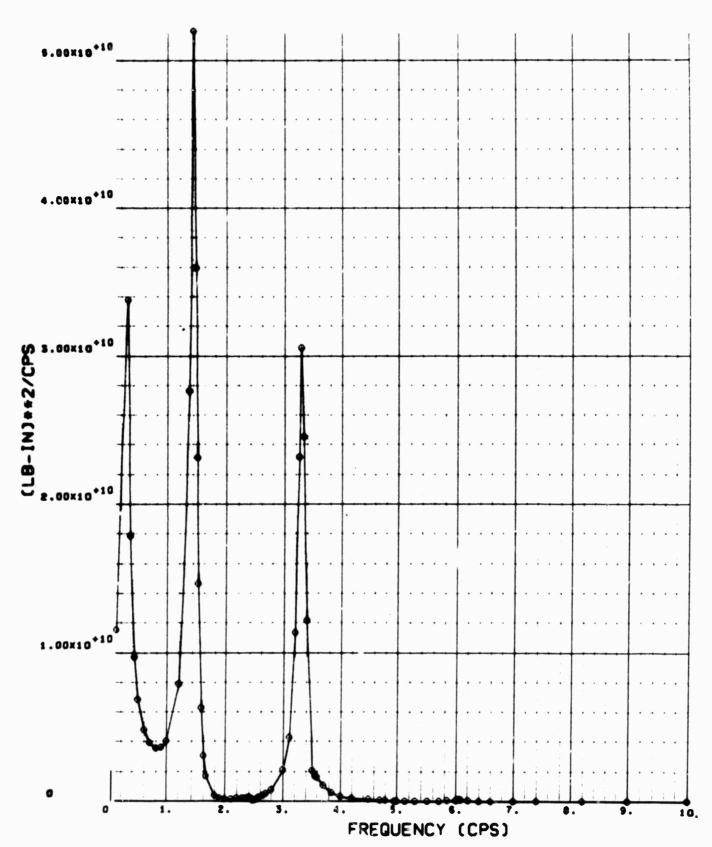
CUTOFF FREQUENCY: 10 CPS SCALE OF TURBULENCE: 5,000 FT



BODY BENDING MOMENT SPECTRUM, BODY BALANCE STATION: 540

GROSS WEIGHT: ALTITUDE: MACH NUMBER: 297, 000 LB 24, 000 FT 0. 50 CUTOFF FREQUENCY: SCALE OF TURBULENCE:

10 CPS 5, 000 FT



SECTION IV

LOAD RESPONSE PARAMETERS AND ZERO - CROSSING RATES

Analysis Condition 1 (Gross Weight: 293,000 Pounds; Mach Number: 0.85; Altitude: 24,000 Feet)

Location		Shear	Bending	moment	Tors	sion
Body Percent semispan	A (lb)	N _O (Zero crossings per second)	(10 ³ inlb)	N _o (Zero crossings per second)	(10 ³ inlb)	N ₀ (Zero crossings per second)

SCALE OF TURBULENCE: 1,000 FT CUTOFF FREQUENCY: 10 CPS

	27 40.06	1,018 877	1.25 1.34	335 230	1.13 1.19	35.6 39.1	2.84 2.48
540		551	2.85	66.7	3.47		
820		1,390	1.10	45.4	1.55		

SCALE OF TURBULENCE: 3,000 FT CUTOFF FREQUENCY: 10 CPS

	27	732	1.22	239	1.10	24.8	2.83
	40.06	626	1.30	164	1.16	27.1	2.48
540		393	2.28	46.4	3.47		
820		1,005	1.17	326	1.50		

	27	620	1.22	203	1.10	20.9	2.83 2.48
	40.06	530	1.30	139	1.16	22.9	2.40
540		333	2.77	39.1	3.45		
820		852	1.06	276	1.49		

Analysis Condition 1 --- Concluded (Gross Weight: 293,000 Pounds; Mach Number: 0.85; Altitude 24,000 Feet)

Loc	ation	S	hear	Bending	moment	Torsion	
Body station	Percent semispan	A (Ib)	N ₀ (Zero crossings per second)	(10 ³ inlb)	N _O (Zero crossings per second)	A (10 ³ in1b)	N ₀ (Zero crossings per second)

SCALE OF TURBULENCE: 1,000 FT CUTOFF FREQUENCY: 15 CPS

540 820	27 40.06 	1,018 878 551 1,390	1.27 1.34 2.85 1.11	334 229 66.7 453	1.13 1.19 3.50	35.6 39.1 	2.84 2.48
		1,000	1.11	453	1.55		

 540 820	27 40.06 	1,018 878 551 1,390	1.27 1.34 2.85	335 230 66.8	1.14 1.19 3.56	35.6 39.1 	2.84 2.48
020		1,390	1.11	454	1.55		

Analysis Condition 2
(Gross Weight: 268,000 Pounds; Mach Number: 0.85 Altitude: 24,000 Feet)

Loc	Location		Shear		Bending moment		sion
Body s tation	Percent semispan	A (Ib)	N _O (Zero crossings per second)	(10 ³ inlb)	N _O (Zero crossings per second)	(10 ³ inlb)	N _o (Zero crossings per second)

SCALE OF TURBULENCE: 1,000 FT CUTOFF FREQUENCY: 10 CPS

	27	1,075	1.74	308	1.17	53.1	3.09
	40.06	874	1.72	204	1.16	55.7	2.73
540		813	3.13	111	3.55		
820		1,471	1.72	538	2.20		

SCALE OF TURBULENCE: 3,000 FT CUTOFF FREQUENCY: 10 CPS

	27	781	1.66	223	1.12	37	3.08
	40.06	630	1.66	148	1.11	38.7	2.73
540		576	3.06	77.2	3.54		
820		1,074	1.64	338	2.12		

	27	662	1.65	190	1.12	31.2	3.08
	40.06	534	1.65	126	1.11	32.6	2.73
540		487	3.06	65.1	3.54		
820		912	1.63	329	2.10		

Analysis Condition 3 (Gross Weight: 190,500 Pounds; Mach Number: 0.85 Altitude: 24,000 Feet)

Loc	ation	Shear		Bending moment		Torsion	
Body station	Percent semispan	: Ib	N _C (Zero crossings per second)	A +10 ³ (n -1b)	N _O (Zero crossings per second)	(10 ³ in -1b)	N _o (Zero crossings per second)

SCALE OF TURBULENCE: 1,000 FT CUTOFF FREQUENCY: 10 CPS

	27	925	1.51	265	1.23	48.9	2.89
	40.06	721	1.72	178	1.29	51.1	2.63
540		965	2.68	123	3.41		
820		1,645	1.31	559	2.20		

SCALE OF TURBULENCE: 3,000 FT CUTOFF FREQUENCY: 10 CPS

	27	681	1.43	193	1.17	34.3	2.86
	40.06	523	1.65	130	1.23	35.6	2.62
540		700	2.56	86.2	3.37		
820		1,225	1.22	408	2 .09		

	27	579	1.42	164	1.16	28.9	2.86
	40.06	444	1.64	110	1.22	30	2.62
540		595	2.54	72.9	3.36		
820		1,044	1.21	347	2 .0 8		

Analysis Condition 4 (Gross Weight: 107,260 Pounds; Mach Number; 0.85; Altitude: 24,000 Feet)

Loc	Location		Shear		Bending moment		SION
Body station	Percent semispan	A (1b)	N _O (Zero crossings per second)	A (10 ³ in!b)	N _O (Zero crossings per second)	(10 ³ in1b)	N _o (Zero crossings per second)

SCALE OF TURBULENCE: 1,000 FT CUTOFF FREQUENCY: 10 CPS

	27	555	2.56	160	1.44	65.9	2.94
	40.06	443	2.86	128	1.70	62.5	2.83
540 820	 	612 885	3.48 1.58	128 385	3.69 2.98		

SCALE OF TURBULENCE: 3,000 FT CUTOFF FREQUENCY: 10 CPS

	27	403	2.44	117	1.36	46.8	2.88
	40.06	314	2.80	94.1	1.61	44.5	2.76
5 4 0 820		435 669	3.40 1.46	90.1 278	3.65 2.86		

	27	342	2.43	99.9	1.35	39.6	2.87
	40.06	266	2.79	80	1.59	37.7	2.75
540		368	3.39	76.1	3.64		
820		572	1.44	236	2.85		

Analysis Condition 5
(Gross Weight: 297,000 Pounds; Mach Number: 0.50; Altitude: 24,000 Feet)

Location		Shear		Bending moment		Torsion	
Body station	Percent semispan	A (Ib)	N _o (Zero crossings per second)	(10 ³ inlb)	N _o (Zero crossings per second)	(10 ³ inlb)	N _O (Zero crossings per second)

SCALE OF TURBULENCE: 1,000 FT CUTOFF FREQUENCY: 10 CPS

	27	579	1.24	202	1.05	13.4	2.63
	40.06	517	1.20	142	1.10	16.7	2.14
540		418	3.07	58.8	3.30		
820		752	1.09	285	1.91		

SCALE OF TURBULENCE: 3,000 FT CUTOFF FREQUENCY: 10 CPS

	27	411	1.21	143	1.03	9.32	2.62
	40.06	365	1.18	100	1.08	11.6	2.14
540		292	3.04	40.8	3.29		
820		536	1.07	20.1	1.88		

	27	348	2.04	121	1.74	7.87	4.42
	40.06	309	1.99	84.7	1.82	9.75	3.62
540		247	5.13	34.4	5.57		
820		45 3	1.80	170	3.17		

DOCUMENT CO	NTROL DATA-R&D	
(Security classification of title, body of abstract and indexing	annotation must be entered when the ord	erall report is classified)
1 ORIGINATING ACTIVITY (Corporate author)	24 RE	PORT SECURITY CLASSIFICATION
The Boeing Company		unclassified
Commercial Airplane Division	26 GR	
Renton, Washington		none
Volume II.		
KC-135 Power Spectral Vertical Gust Lo	ad Analysis	
Supplementary Results 4 DESCRIPTIVE NOTES (Type of report and inclusive dates)		
Final Report July 1965 to March 1966		
5 AUTHOR(S) (Last name, first name, initial)		
Latz, Robert N.		
	T	
⁶ REPORT DATE July 1966	74. TOTAL NO. OF PAGES	76. NO. OF REFS.
84. CONTRACT OR GRANT NO.	94. ORIGINATOR'S REPORT NU	none
	Jan ORIGINATOR'S REPORT NO	MBER(S)
AF 33 (615) - 2454	AFFDL-TR-66-57,	Vol. II
System No. 5(611367 62405334)		
,		y other numbers that may be assigned this
Project No. 1367	report)	
d. Task No. 136702	D6-18252	
10. AVAILABILITY/LIMITATION NOTICES		
This document is subject to special exponent	rt controls and each tra	nsmittal to foreign
governments or foreign nationals may be		
Flight Dynamics Laboratory (FDTR), W	right-Patterson AFR (Ohio 45433
11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY AC	
	Air Force Flight Dyna	mics Laboratory, Research
	and Technology Division	•
none	Command, Wright-Pat	
13 ABSTRACT	Tomana Willent Tat	TO SOM AT D.

This document presents frequency response functions, power spectra, and response parameters of bending moments, shears, and torsions at two wing stations and two body stations for five conditions of speed, gross weight, and altitude. Volume I presents frequency response functions and response parameters for stresses at the same wing and body stations. Also presented in volume I are ratios of incremental allowable limit stress to stress response parameter.

Unclassified

14:	KEY WORDS		LINK A		LINK B		LINK C	
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